

ASG-SmartQuest™ User's Guide

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Preface

This *ASG-SmartQuest User's Guide* provides information to help you use ASG-SmartQuest (herein called SmartQuest). SmartQuest is a powerful yet easy-to-use tool for analyzing Batch and CICS transaction abends. It has been designed to make the maximum use of simple point-and-shoot techniques to enable fast and easy navigation through any data dump. An action bar, with associated pull-down screens, allows for rapid selection of all areas in the dump as well as other dump- or product-related information. Such features make the product easy to use and almost command free.

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, "Introducing SmartQuest,"](#) provides an introduction to SmartQuest.
- [Chapter 2, "Using SmartQuest,"](#) describes how to use SmartQuest.
- [Chapter 3, "Analyzing Dumps,"](#) provides information for analyzing SmartQuest dumps.
- [Chapter 4, "Utilities,"](#) describes the utilities that are available to provide additional functions or to support the online features.
- [Chapter 5, "Reporting Problems,"](#) discusses the action that you should take in the event of a problem with any component of this software.

Related Publications

The documentation library for ASG-SmartQuest 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-SmartQuest Installation Guide* (SQM0300-*nn*) provides installation instructions for SmartQuest.
- *ASG-SmartQuest Quick Reference Card* (SQM0900-*nn*) provides a summary of the commands and functions within SmartQuest.
- *ASG-SmartQuest User's Guide* (SQM0200-*nn*) provides instructions for using SmartQuest.

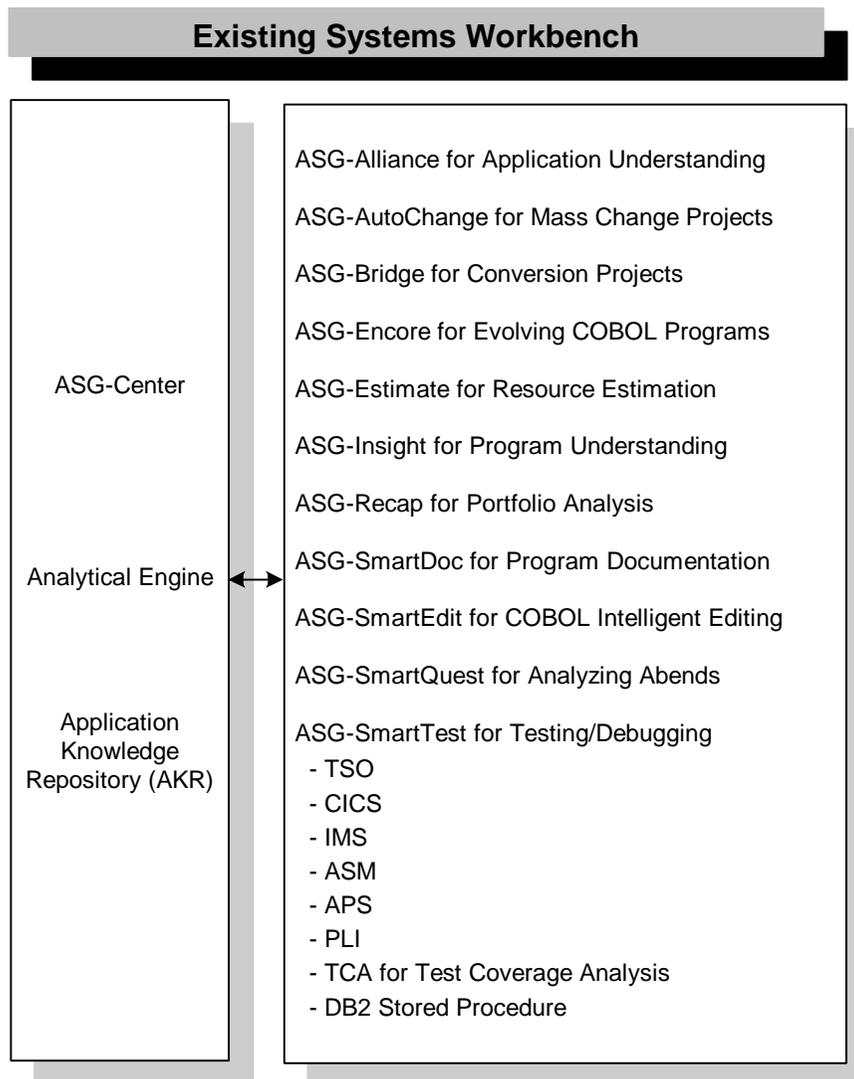
Note: _____

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.

[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

```

File View Extract Generate Search Logic List Options Help
-----
ASG-ESW - Program Re-engineering
Command ==> -----

*****
*****
*****
*****
*****
*****
*****
*****
*****
*****

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```

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

```

Command ==> -----
File - Analyze Submit
-----
E - Edit JCL                               S - Submit JCL

Compile and link JCL (PDS or sequential):
Data set name -----

Analyze features (Y/N):
ASG-SmartTest: Y   Extended Analysis: N

AKR data set name -----
AKR program name NEWDEMO           (if overriding PROGRAM-ID)

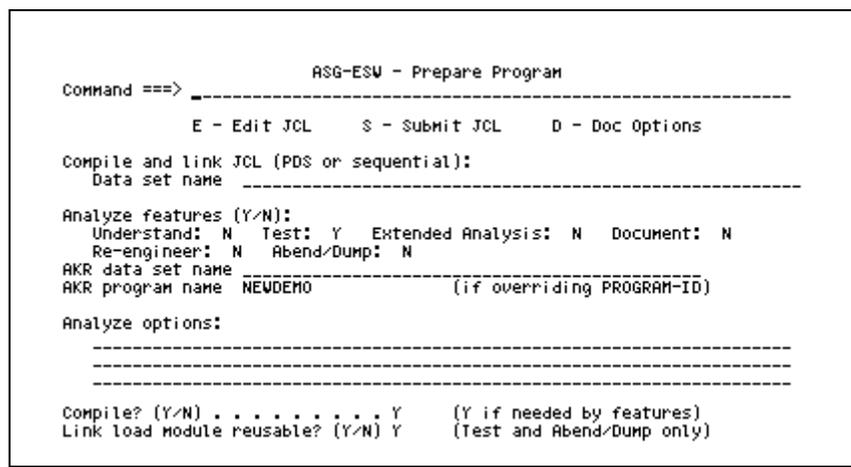
Analyze options:
-----
-----

Compile? (Y/N) . . . . . Y   (Y if needed by features)
Link load module reusable? (Y/N) Y

```

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).
<i>lowercase italic monospace</i>	Information that you provide according to your particular situation. For example, you would replace <i>filename</i> 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|<u>N</u>).
<u>Underline</u>	Denotes a cursor-selectable field or line.

ASG Customer Support

ASG provides support throughout the world to resolve questions or problems regarding installation, operation, or use of our products. We provide all levels of support during normal business hours and emergency support during non-business hours.

ASG Third-party Support. ASG provides software products that run in a number of third-party vendor environments. Support for all non-ASG products is the responsibility of the respective vendor. In the event a vendor discontinues support for a hardware and/or software product, ASG cannot be held responsible for problems arising from the use of that unsupported version.

Intelligent Support Portal (ISP)

Online product support is available at: <http://www.asg.com/support/support.asp> via the ASG Intelligent Support Portal (ISP). Your logon information for ISP online support is:

Customer ID = *NNNNNNNNNN*

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

	Phone	Fax	E-mail
United States and Canada	800.354.3578	1.703.464.4901	support@asg.com

Europe, Middle East, and Africa (EMEA)

During normal business hours, we recommend that you call the Central Support number first (except in South Africa).

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English	44.1727.736305	44.1727.812018	support.uk@asg.com
French	33.141.028590	33.141.028589	support.fr@asg.com
German	49.89.45716.200	49.89.45716.400	support.de@asg.com
Italian	39.0290450025		support.it@asg.com
Dutch	31.30.241.6133		support.nl@asg.com
Spanish	34.913.523.800	34.917.156.961	support.es@asg.com
South Africa	800.201.423		support.sa@asg.com

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Hong Kong	800.96.2800		support.hk@asg.com
Japan	81.3.5326.3684	81.3.5326.3001	support.au@asg.com
Singapore	65.224.3080	65.224.8516	support.sg@asg.com

All Other Countries (Also for any non-working numbers)

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All other countries	1.239.435.2201		support@asg.com

If you receive a voice mail message, follow the instructions to report a production-down or critical problem. Leave a detailed message including your name and phone number. An ASG Customer Support representative will be paged and will return your call as soon as possible. Please have available the information described previously when the ASG Customer Support representative contacts you.

ASG Documentation/Product Enhancements

Submit all product and documentation suggestions to ASG's product management team at <http://www.asg.com/asp/emailproductsuggestions.asp>.

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

Introducing SmartQuest

This chapter introduces SmartQuest and contains these sections:

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SmartQuest Overview	1
Capturing Dumps	2
Examining Dumps Captured by SmartQuest	5
SmartQuest Abend Notification	5
SmartQuest Overhead	6
SmartQuest Resources	6
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SmartQuest Overview

SmartQuest is a tool for analyzing Batch and CICS transaction abends, which provides source-level support for your COBOL, PL/I, and Assembler programs. This means that you can view the source code for your abending programs online with the failing statement clearly highlighted. In addition, the individual contents of your program variables are displayed for quick and easy examination. Most MVS and CICS control blocks are shown mapped with their field names automatically and, if you use the source support feature, SmartQuest also automatically maps areas such as your COBOL working storage and your PL/I DSA.

Source support can be obtained from ASG-SmartTest analyzed programs that reside in an ESW Application Knowledge Repository (AKR), or from ASG-SmartQuest's own support features.

For DL/1 abends, a screen showing details of the last five CALLs is provided. These screens enable you to quickly examine any of the DL/1 control blocks or CALL parameters.

The dump index file allows you to view dumps captured in any of your CICS regions from a single CICS region or from a TSO/ISPF session.

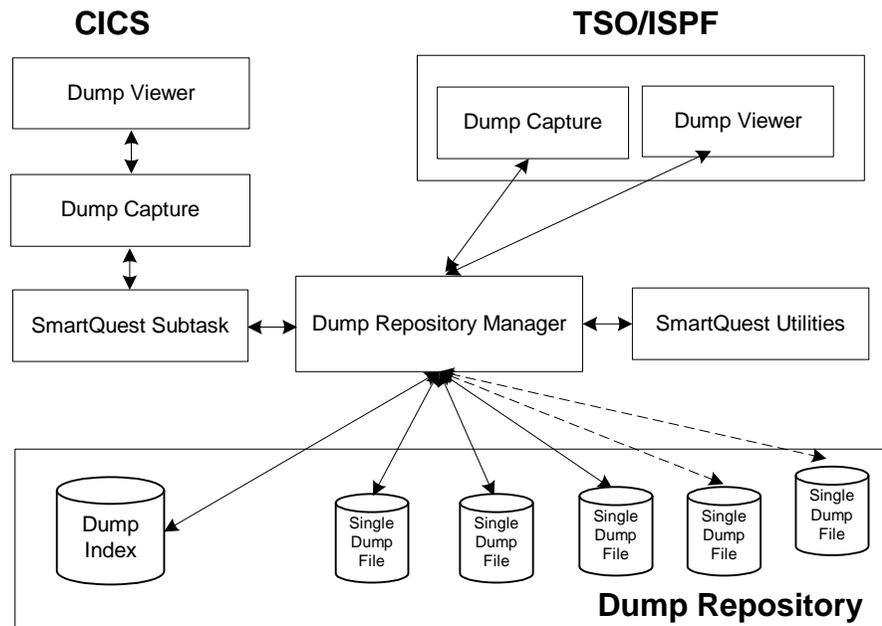
Capturing Dumps

SmartQuest must be initialized before it can capture dumps. You can do this automatically in CICS by adding an entry to your start-up PLT, or manually by using the CICS transaction (IQST) supplied with the product. The initialization starts the SmartQuest abend trapping mechanism.

Dump Capture Overview

SmartQuest can process multiple dumps and uses the dump repository to store and manage each dump in a unique dataset. The dump index file contains control records for each dump file. [Figure 6](#) is an overview of how SmartQuest manages dumps.

Figure 6 • SmartQuest Overview



SmartQuest Component	Description
Dump Repository	Consists of one Dump File Index and one or more dump files. You can allocate one or more repositories.
Dump Repository Manager	Performs all required dump storage, retrieval, maintenance, and administrative functions. The Dump Repository Manager runs as an MVS subtask in CICS systems.
Dump Index	<p>Contains control records that provide this information:</p> <ul style="list-style-type: none"> • Dataset naming standards • Last used dump sequence number • Authorized volumes for dynamic VSAM file allocation <p>You can allocate and modify the Dump Index File using option 2, Dump Index List Maintenance, on the SmartQuest Maintenance Menu screen.</p>
Dump File	Contains an individual, uniquely identified dump. The dump file is dynamically allocated and cataloged by the Dump Repository Manager as a dump is recorded. The dataset name is assigned based on the user-supplied naming standards in the dump index file.

Processing Abends

Using an SVC 51 Intercept

When Batch jobs that have a SYSABEND, SYSUDUMP, or SYSMDUMP DD card in their JCL deck abend, MVS issues an SVC 51 instruction unless you are using PL/I with the STAE or SPIE run-time options or if you are using Language Environment run-time libraries with TRAP(ON). SVC 51 is the SNAP SVC and causes a snapshot dump to be taken.

SmartQuest works by intercepting the SVC 51 calls (using approved, documented IBM services) and, optionally, writing all relevant information to a VSAM KSDS dataset, a print SYSOUT, or both.

When SmartQuest for MVS has completed its own dump capture, control is passed to the true SVC 51 routine so that an IBM dump can also be captured. You can suppress the IBM dump using a SmartQuest customization option.

Note: _____

Your job must contain a SYSABEND, SYSUDUMP, or SYSMDUMP DD card. The SVC 51 routine is not driven if none of these DD cards are specified.

Using PL/I STAE and SPIE Run-time Options

If you use the PL/I STAE or SPIE run-time options, the SVC 51 snapshot dump is not produced even if you include a SYSABEND, SYSUDUMP, or SYSMDUMP DD card. This is because PL/I has its own error handling routines that are given control when the error occurs. Often these simply inform the programmer that an error has occurred at a particular offset in a certain PL/I procedure, and also provides a brief description of the nature of the error.

SmartQuest for MVS provides a full dump in such situations, including PL/I source-level support. This is achieved by relinking the PL/I module that contains the PL/I error handling routines. The relink of this module replaces the PL/I error handling routines with a SmartQuest PL/I error handling routine. This allows SmartQuest to capture all of the relevant dump information and write this to the VSAM KSDS dump file before passing control on to the original PL/I error handling routine.

Using Language Environment Run-time Libraries

Like PL/I STAE/SPIE, Language Environment has its own error handling routines. If you have the option TRAP(ON), which IBM recommends, then the LE error handling routines obtain control when an error occurs and a Language Environment dump is produced (usually to the CEEDUMP SYSOUT dataset). While the information in this SYSOUT file may be sufficient to resolve simple abends, many have found it to be inadequate when investigating more serious errors and would prefer to have the SVC 51 type dump.

For Language Environment, SmartQuest gives you more than the CEEDUMP dump. You get the whole dump, as though from an SVC 51, but with the powerful source support and easy point-and-shoot analysis interface.

The dump capture is accomplished by defining a Language Environmentabend termination exit program. This is also an IBM approved and documented technique. The exit program that performs the dump capture is provided with SmartQuest and the simple steps to enable this exit are described in the *ASG-SmartQuest Installation Guide*. After dump capture is complete, control is passed to the true Language Environment error handler which produces the normal CEEDUMP.

How Abends are Processed in a CICS/ESA Environment

A CICS transaction dump can be requested due to a program abend, or by issuing an EXEC CICS DUMP command. When SmartQuest is activated, it intercepts these transaction dump requests and captures the entire transaction environment to a VSAM KSDS dump dataset. It does this by suspending the dumping transaction and attaching an MVS subtask to perform the actual capture. When capture is completed, the suspended task resumes and continues with its normal processing, which may be to terminate.

Examining Dumps Captured by SmartQuest

You can analyze any abend through a TSO/ISPF dump viewer session that can be installed as a selection on the ISPF screen or invoked through a REXX EXEC. Alternatively, you can use the CICS dump display interface (transaction IQDS) if this has been installed. The TSO/ISPF interface and the CICS interface are identical, with the exception that ASG-SmartTest AKR source support is available only in the TSO viewer.

See "[Using SmartQuest](#)" on page 9 for detailed information about using the dump display feature.

SmartQuest Abend Notification

When a transaction abends and terminates, and after the dump is captured, SmartQuest displays a notification screen at the terminal where the abend occurred. This screen is customizable and contains information asking the user to report the abend to a person, a programming team, or a general help desk. You can vary the contact name on this screen according to the transaction ID or generic transaction ID of the abending task. You can customize SmartQuest for CICS to issue a TSO notification to a specified TSO user and vary the user ID by transaction ID or generic transaction ID. You can also suppress the displaying of this screen.

If a Batch job abends, SmartQuest issues a TSO notify to a specified TSO user or to several TSO users. The user IDs can be defined for a specific job or for a generic group of jobs. Messages are also written to the MVS Console and JES job log. These messages mark the progress of each abend as it is processed by SmartQuest.

Note: _____

See the *ASG-SmartQuest Installation Guide* for more information about customizing the Notification screen.

SmartQuest Overhead

In terms of processor usage, SmartQuest creates no overhead on your system until a dump occurs. When a dump does occur, additional processing and I/O take place. The time that this requires varies depending on the size of the programs, storage areas being used by the abending task, and whether dumps are occurring concurrently. In all cases, the additional elapsed time is not excessive. The design of the product is such that only the abending task is suspended while capture takes place. Other tasks are scheduled and run as normal.

If you use the source-level support feature, overhead also increases when you compile your programs. Again this varies greatly depending upon the size of the program you are compiling and the number of declared variables that it contains.

SmartQuest Resources

Precise requirements are difficult to specify because the programs loaded, storage areas acquired, and amount of temporary storage in use are highly variable depending on the feature currently in use.

Where possible, SmartQuest makes use of above-the-line storage. Almost all of the SmartQuest programs and storage reside above the line. You can examine program size with these methods:

- Using the CEMT transaction for CICS.
- Browsing the products LOADLIB and LINKLIB using the TSO browse facility for MVS.

The dump viewer is pseudo conversational, so any storage that it obtains is freed upon termination of the task.

SmartQuest Robustness

Because the product is designed to run in production environments, its robustness has been a major feature of its design.

During dump capture, if errors occur (possibly due to corruption of control blocks that the capture mechanism uses), SmartQuest recovers and continues the dump capture process. If control blocks are so badly damaged that dump capture is impossible, then the capture process terminates and the suspended abending task resumes to allow it to produce a normal dump.

Both the CICS and TSO/ISPF versions of the display feature can recover from any internal error in the unlikely event of an abend. This prevents termination of your dump analysis session and preserves such things as user-defined labels for marking areas of the dump.

2

Using SmartQuest

This chapter describes how to use SmartQuest and contains these sections:

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Starting SmartQuest	9
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Accessing the Dump Viewer Using the TSO Interface	15
Using the Dump Viewer Navigation Aids	17
Using the Dump Viewer	21

To analyze dumps, you can use the CICS or the TSO interface. For CICS, use the IQDS transaction to enter the dump viewer. For TSO, select the SmartQuest TSO Facilities Menu option that was added to one of your TSO menus at installation. If you do not know which menu this has been added to, consult your systems programmer.

Note: _____

For SmartQuest Release 7.0, dumps that you captured using a previous release of SmartQuest cannot be viewed using the SmartQuest 7.0 viewer.

Starting SmartQuest

The method you use to invoke SmartQuest depends on your system setup. If your site starts SmartQuest directly, use the ISPF selection or CLIST as indicated by your systems administrator. After you activate the session, the SmartQuest primary screen displays.

If you need assistance to activate SmartQuest, see your systems administrator.

To access the Maintenance facility screens to customize SmartQuest

- 1 From the ESW primary screen, select File ► Config Abend/Dump Facility on the command line and press Enter. The ASG-SmartQuest - Configuration and Customization Menu, shown in [Figure 9](#), displays.

Note:

This facility can be protected by a security product and may not be available, or can fail, if you are not authorized.

If the Config Abend/Dump Facility option does not display on the File pull-down, the CONFIG parameter in the VIASGBL CLIST has been set to NO and this option is not available. See the *ASG-Center Installation Guide* for more information about the CONFIG parameter.

Figure 9 • ASG-SmartQuest - Configuration and Customization Menu

```

----- ASG-SmartQuest - Configuration and Customization Menu -----
Option ==> _____

Configuration:
=====
1) Allocate and Initialize USER PROFILE USAM dataset
2) Allocate and Initialize PRODUCT CONFIGURATION USAM dataset
3) Allocate and Initialize ABEND CODES and HELP USAM datasets
4) Allocate and Initialize APPLICATION PROGRAM SOURCE USAM dataset
5) Allocate and Initialize PRODUCT DUMP INDEX USAM dataset

Customization:
=====
A) Manage APPLICATION PROGRAM SOURCE definitions
B) Manage PRODUCT DUMP INDEX definitions
C) Manage PRODUCT MUS DUMP CAPTURE PARAMETERS
D) Manage PRODUCT CICS DUMP CAPTURE PARAMETERS
E) Manage DUMP VIEWER CICS and MUS PARAMETERS

Support:
=====
MON) Monitor SPECIFIC MUS or CICS DUMP CAPTURES
INU) DUMP FILE UTILITY
      Enter OPTION or END to exit.

```

- 2 Select the option you want to modify. See the *ASG-SmartQuest Installation Guide* for more information about these options.

Performing a SmartQuest Analyze

To begin an analyze, follow this step:

- ▶ From the SmartQuest primary screen, select File ▶ Prepare Program. The ASG-ESW Prepare Program pop-up, shown in [Figure 10](#), displays.

Figure 10 • ASG-ESW Prepare Program Pop-up

```

ASG-ESW - Prepare Program
Command ==> -----
          E - Edit JCL      S - Submit JCL      D - Doc Options

Compile and link JCL (PDS or sequential):
  Data set name 'USER.TEST.CNTL{YOURJCL}'

Analyze features (Y/N):
  Understand: N  Test: Y  Extended Analysis: N  Document: N
  Re-engineer: N  Abend/Dump: N
  AKR data set name 'USER.L3.AKR'
  AKR program name TEST          (if overriding PROGRAM-ID)

Analyze options:
-----
-----
Compile? (Y/N) . . . . . Y      (Y if needed by features)
Link load module reusable? (Y/N) Y      (Test and Abend/Dump only)
    
```

Options

Option	Description
E - Edit JCL	<p>Displays the compile/analyze JCL to review or change the JCL, if necessary. When the E option is selected, the JCL to be edited is generated from the JCL member specified in the Data Set Name field, applying the rules outlined in the Automatic JCL Modifications section. The generated JCL is then displayed on the Edit screen.</p> <p>When editing is complete, type ISPF SUBMIT to submit the edited JCL for execution. Optionally, the edited JCL can be saved in a partitioned dataset by using the CREATE command. Otherwise, any changes made at this time are not saved.</p>
S - Submit JCL	<p>Submits the JCL to compile/analyze the specified program. The JCL submitted is generated from the JCL member specified in the Data Set Name field, applying the rules outlined in the Automatic JCL Modifications section.</p>
D - Doc Options	<p>Displays only if SmartDoc is installed. Type D to display the File - SmartDoc Options pop-up that is used to request an Extended SmartDoc analysis and to specify which reports (if any) are to be generated.</p>

Fields

Field	Description
Data set name	Specifies the PDS member or sequential dataset containing the JCL to compile and link the program. If the JCL resides in a source manager such as CA-Librarian or CA-Panvalet, use the VIASUB edit macro to submit the compile/analyze job.
Understand	Displays only if Insight is installed. This type of analysis provides the logic and program execution flow capabilities of Insight. If Insight is the only product installed, this field contains a Y value and cannot be changed. The default is Y.
Test	Displays only if SmartTest is installed. This type of analysis provides the testing and debugging information required by SmartTest. If SmartTest is the only product installed, this field contains a Y value and cannot be changed. The default is Y.
Extended Analysis	Displays only if SmartTest is installed. This type of analysis provides comprehensive program analyzing capabilities for SmartTest FLOW and TRACE commands in addition to the testing and debugging of SmartTest. The default is Y.
Document	Displays only if SmartDoc is installed. This type of analysis provides the report information generated by SmartDoc. If SmartDoc is the only product installed, this field contains a Y value and cannot be changed. The default is N, unless you are accessing this feature from within SmartDoc.
Re-engineer	Displays only if Encore is installed. This type of analysis provides the logic and program execution flow capabilities of Encore. If Encore is the only product installed, this field contains a Y value and cannot be changed. The default is N, unless you are accessing this feature from within Encore.
Abend/Dump	Displays only if SmartQuest is installed. This type of analysis lets you analyze the source used in diagnosing dumps. The default value is N.
AKR data set name	Specifies the AKR that will contain the information for the analyzed program.

Field	Description
AKR program name	<p>Specifies an alias name used by the analyze process to save its results in the AKR. If a value is not entered in this field, the analyze job uses the program name from the PROGRAM-ID statement in the COBOL source as the name under which to save results in the AKR.</p> <p>Note: _____ This field is only used for the AKR program name and does not change the COBOL program name in the source. _____</p>
Analyze options	<p>Specifies analyze options that are to be overridden. Default options for the analyze job are established at installation time. Analyze options that can be entered in this field are described in the user's guide for each ESW product.</p>
Compile?	<p>Indicates whether the program is to be compiled. A program need not be compiled if Insight, Encore, or SmartDoc are the only features specified. You can suppress the compile step by typing N in this field. This field is forced to a value of Y if SmartTest and/or Extended Analysis are selected.</p>
Link load module reusable	<p>Tests a program using SmartTest (non-CICS) that is dynamically loaded and will be tested with RUN NOMONITOR. It is necessary to mark the load module as reusable so that the Breakpoints are retained across calls. The default is Y.</p>

Customizing Dump Captures (MVS Only)

By default, SmartQuest for MVS captures dumps for all jobs. You can determine the dumps that are captured by customizing the Include and Exclude tables and using special DD cards. For example:

- Use the Maintenance - Included Job Names screen to only capture dumps for jobs listed on this screen.
- Use the Maintenance - Excluded Abend Codes screen to exclude abends with codes that you list there. To avoid unnecessary dump file reorganization, we strongly recommend that you exclude common abends that do not require a dump.
- Add this DD card to your JCL to exclude an individual job:

```
//NONINQST DD DUMMY
```

- Add this DD card to your JCL to override a No setting (for example, subpool storage or loaded program storage) for an individual job:

```
//FULINQST DD DUMMY
```

- Add this DD card to your JCL to override a VSAM setting output destination for an individual job and enable you to print the dump:

```
//PRTINQST DD DUMMY
```

Accessing the Dump Viewer Using the TSO Interface

After you access SmartQuest, use the View pull-down to set the default viewer files or access the dump viewer.

To specify your SmartQuest datasets

- 1 From the SmartQuest primary screen, select View ► Settings and press Enter. The ASG-SmartQuest - Default Viewer Files screen, shown in [Figure 11](#), displays.
- 2 Type the names of your datasets, replacing ASG and VIACENxx with your high-level and mid-level qualifiers. Check with your installation administrator if you do not have these dataset names. The names are saved in your ISPF profile file.

Figure 11 • Default Viewer Files Screen

```

ASG-SmartQuest - Default Viewer Files
Command ==> -----
Load Library . . . . . ASG.VIACENXX.LOADLIB
Viewer Help . . . . . ASG.VIACENXX.SQVIEWHP
CICS Abend Codes . . . . ASG.VIACENXX.SQCICABP
MVS Abend Codes . . . . . ASG.VIACENXX.SQMAEHLF
MVS Msgs and Codes . . . . ASG.VIACENXX.SQMMCHLP
User Profile File . . . . ASG.VIACENXX.SQUPROF
Configuration File . . . . ASG.VIACENXX.SQCONFIG
(CICS Only) DFHMACD . . . CICS?????.DFHMACD

Make changes to file names or PF3 (END) to exit.
```

- 3 Press Enter to save your changes, then PF3 to exit.

Using the Dump Viewer Navigation Aids

Action Bar

The action bar in SmartQuest enables you to access any portion of the dump or product-related information without needing to remember commands or to navigate through many screens. The action bar options are described in detail in ["Using the Dump Viewer" on page 21](#).

Labeling Screens

Every SmartQuest screen, with the exception of the pull-downs and the last 3270 display (CICS only), can be assigned a label and redisplayed at any time during a session using that label. See ["The Labels Action Bar Option" on page 60](#) for more information.

Assigning Labels

To assign or reassign labels, follow this step:

- ▶ Type `SET label` or `S label`, where *label* is a name from 1 to 30 characters in length. The first character must be an alphabetic character (A through Z), but the remaining can be any keyboard characters, including imbedded blanks.

These are examples of valid and invalid labels:

Label	Status
MYAREA	Valid
MYAREA 2	Valid
AN AREA OF INTERESTING STORAGE	Valid
A(STOR1)	Valid
ACB#3	Valid
&MYLAB	Not valid (does not begin with an alphabetic character)

Note:

You can reassign any label to a new screen by reissuing the SET command.

Displaying a Labeled Screen

To redisplay a labeled screen, follow this step:

- ▶ Type `LOCATE label` or `L label`.

Using the Labels Action Bar Option

If you have created several labels, it can be difficult to remember all the names that you assigned. The Labels action bar option displays your assigned labels.

To locate a labeled screen

- 1 Position the cursor on the word Labels in the action bar line and press Enter or type LABELS to display the Labels pull-down screen shown in [Figure 14](#).

Note:

If you have not assigned any labels, a message to that effect displays.

Figure 14 • Labels Pull-down Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Active program c *-----*
Abnd/Lnk UKS/DSA Program Labels
> 000EBE74 00000000 DFSEIPB0 @bendsummary
000643A0 00000000 IGZCFCC Le cond
0C9D8168 0CBE90B8 MUDLIB Dfseipb0
000B3280 00000000 MUDLIB Psw2
0005B96E 00000000 DFSFLST0 Corestg
0005E94E 00000000 CEEBINIT
00FCCE40 00000000 DFSBC000
0005B622 00000000 DFSGCC30
00007F96 00000000 DFSRRC00
*-- PF3=End 7/8=Scroll -----*

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
Position cursor at required label and press <enter>

```

- 2 Tab to the desired label and press Enter to display the screen that has the selected label assigned to it. Use the Up and Down PF keys to scroll through the list of labels.

Stacking Views

The view stacking mechanism of SmartQuest is an extremely useful feature. Each time you view a new screen using the action bar, by ZOOMing, or using an equivalent command, the previous screen is pushed onto a stack. A stack has 10 levels and holds your last 10 screens. The product does not save the entire screen in the stack, only sufficient information to rebuild it exactly. PF3 or the END command returns you to a previous screen in the stack.

View stacking is useful in these situations:

- Using the ZOOM feature to follow a storage chain. If you make a mistake, or if you want to chain back and take a different route, you can press PF3 to return along the chain to the point where the mistake was made or to where the new route begins. This is significantly easier than finding your start position again.
- Examining a particular area. You may want to view other information, such as the register contents. You can display the registers using the Details action bar option, obtain the information required, and return to your original screen by pressing PF3.
- Examining the contents of several addresses displayed in an area of core. ZOOM to the first occurrence and press PF3 to return to the original storage area screen. Now ZOOM to the second and return with PF3. Continue doing this until you have examined all the required addresses.

Managing Multiple Views

SmartQuest enables you to preserve a stack of displays. If you have followed a storage chain, you can use the view stack mechanism to return to the anchor point. SmartQuest lets you open a maximum of four view stacks at any one time. The view stack you are currently using is clearly shown on the screen. The fourth line always says VIEW *n*, where *n* is a number from 1 to 4. By default you are always in VIEW 1.

To open a new view stack, follow this step:

- ▶ Type VIEW *n*, where *n* is a number between 1 and 4. You can also use this command to switch between open views.

To switch between view stacks, follow this step:

- ▶ Type SWAP to switch to the next open view. Each time you type SWAP, the next open view displays. For example, if you had four view stacks open, you would move from view 1 to view 2, from view 2 to view 3, from view 3 to view 4, and from view 4 to view 1.

To close a view stack, follow this step:

- ▶ Type CLOSE *n*. Closing a view stack does not delete its contents. It merely stops it from being shown when the SWAP command is used. If you reopen a closed view its entire stack is still available for use.

To save a view stack, follow this step:

- ▶ Type LABEL. See ["Labeling Screens" on page 17](#) for more information.

Note: _____

You can also use labeling to move a screen from one view stack to another by labeling the screen in one view stack and locating the label in another view stack.

ZOOMing

The point-and-shoot technique, referred to as ZOOMing, enables you to access additional screens from the screen you are viewing. Any field shown in light blue on a terminal capable of handling full extended 3270 data streams, or any highlighted field on a monochrome display that can be TABbed to, is a valid field for ZOOMing.

In almost all cases, these fields contain an address or a potential address. The only exception is the CICS/ESA Trace display, where an abbreviated trace entry can be used for ZOOMing to the expanded trace entry.

Action Bar Option	Description
List	Lists the dumps matching the criteria entered in the Dump Filter Criteria pull-down screen. You can select, print, hold, or delete dumps from this screen. See "The List Action Bar Option" on page 26 for more information. The List option is enabled only if you have previously specified default criteria or if there are dumps that match the default filter criteria.
Details	Enables you to choose the areas or details that you want to analyze within the dump. See "The Details Action Bar Option" on page 28 for more information.
Labels	Enables you to assign labels to the dump screens and use those labels to redisplay a screen at any time while the dump is open. See "The Labels Action Bar Option" on page 60 for more information.
Maps	Displays the DSECTs and other storage area layouts for the dump. See "The Maps Action Bar Option" on page 63 for more information.
Toggles	Provides a set of simple switches for SmartQuest features. See "The Toggles Action Bar Option" on page 63 for more information.
Help	Provides high-level reference information for the experienced user. See "The Help Action Bar Option" on page 65 more information.

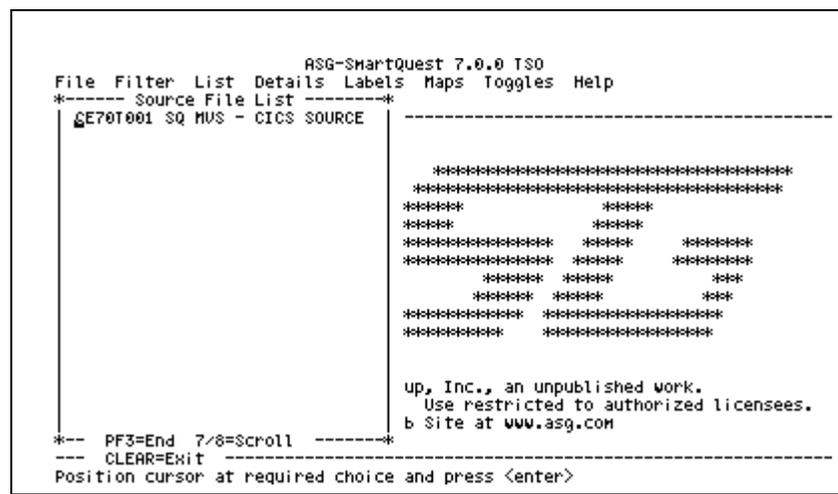
Note:

There is no split screen when using the TSO interface. However, you can issue ISPF commands defined in your ISPF commands table (for example SDSF), as well as any command normally prefixed by TSO (for example, TSO LISTCAT).

To specify the primary source file

- 1 Select File ► Select prime source file or type FILE and press Enter. The Source File List pop-up, shown in [Figure 18](#), displays.

Figure 18 • Source File List Pop-up



- 2 Tab to the name of your primary source file and press Enter.

To specify the alternate source file

- 1 Select File ► Select alternate source file or type FILE and press Enter. The Source File List pop-up, shown in [Figure 18](#), displays.
- 2 Tab to the name of your secondary source file and press Enter.

The Filter Action Bar Option

Depending on the number of dumps that occur and the length of time you retain these dumps on file, the number of dumps currently on the dump index can become quite large. The Filter option enables you to restrict the number of dumps displayed on the Selected Dump List pull-down screen.

You can chose to view CICS dumps, Batch dumps, or both. The filter criteria lets you filter dumps using these options:

- Date
- Abend code
- Job name (#)
- Transaction (*)

- Terminal (*)
- CICS applid (*)

Filter criteria fields marked with an asterisk (*) are applicable only to CICS abends, and those marked with a pound sign (#) are applicable only to Batch abends.

To filter the number of dumps displayed

- 1 Select Filter on the action bar or type FILTER and press Enter. The Dump Filter Criteria pull-down screen, shown in [Figure 19](#), displays.

Figure 19 • Dump Filter Criteria Pull-down Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Comma *--- Dump Filter Criteria ---*
UIEV
(B)atch/(C)ICS. ■
From (yyyyymmdd) 2002 10 14
To (yyyyymmdd) 2002 10 14
Abend Code.....
Job name(#)....
Transaction(*).
Terminal(*).
Cics applid(*).
A pr
*--- PF3=End ---*
--- CLEAR=Exit ---
(*)=CICS abends only. (#)=Batch abends only

```

- 2 Type your filtering criteria. You can request dumps within a specific date range, for a particular transaction ID, with a particular abend code, or that occurred in a particular CICS region or at a particular terminal. The From and To date fields are required but all others are optional. If you do not specify a dump type (Batch or CICS), you receive both.

- a By default, the From date and To date contain the current date, which builds a list that includes only today's dumps. Change the From date to 1900 01 01, for example, for a full list of all the dumps on your file.
- b You can modify your current dump viewing list at any time by reselecting the Filter action bar option and changing the filter criteria to rebuild the list.

You can use the trailing asterisk (*) and the question mark (?) as wildcard characters when specifying your search criteria. These can be used in all fields except the Dump Type (CICS or Batch) field and the Date field. For example, in the Abend Code field, you can specify S* to indicate all Batch system abends, or S?37 to indicate any SB37, SD37, SE37, and so forth.

- 3 Press Enter to display the Selected Dump List pull-down screen. This screen also displays anytime you select the List action bar option.

The List Action Bar Option

The List option displays a list of the dumps on your system for which you can perform various functions. The Filter option enables you to filter the number of dumps displayed in the Selected Dump List pull-down screen. If you do not enter any filter criteria before choosing the List option, only the dumps with the current date are displayed.

Use the List option to delete, hold, print, or select different dumps at any time. To rebuild the list with different filter criteria, select the Filter action bar option.

To analyze and manage system dumps

- 1 Position the cursor on the word List in the action bar line or type LIST and press Enter. The Selected Dump List pull-down screen shown in [Figure 20](#) displays.

Note:

If you do not specify filter criteria and if there are no dumps that match the default criteria, you receive the message No matching dumps for current filter criteria. Use the Filter option to specify filter criteria and try the List option again.

Figure 20 • Selected Dump List Pull-down Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Comma * *----- Selected Dump List -----*
VIEW | |-----|-----|-----|-----|-----|-----|-----|-----|-----|
      | |Date   |Time   |Job/Appl|Tran   |Abnd   |Term   |Program |Cnt   |Notes |
      | |-----|-----|-----|-----|-----|-----|-----|-----|-----|
      | | 2002-10-14 05:02:43 VIATESTU   $0C7   MVC0BVA
      | | - 2002-10-14 05:02:25 VIATESTU   $0C7   MVC0BVA
      | | - 2002-10-14 04:59:48 VIATESTT   1041   Unknown
      | | - 2002-10-14 04:56:08 VIATESTS   1041   DFSEIPB0
      | | - 2002-10-14 04:55:40 VIATESTS   $0CF   MVDLIC
      | | - 2002-10-14 04:51:35 VIATESTQ   $0CF   MVBHPC
      | | - 2002-10-14 04:30:47 VIATESTQ   1041   Unknown
      | | - 2002-10-14 04:26:03 VIATESTP   $0C7   MVDB2CC
      | | - 2002-10-14 04:25:20 VIATESTN   $0CB   MVDB2CB
      | | - 2002-10-14 04:22:35 VIATESTM   4001   T64BIT
      | | - 2002-10-14 04:21:07 VIATESTL   $0C9   CPROGA
      | | - 2002-10-14 04:18:13 VIATESTK   4038   MVPL3F
      | | - 2002-10-14 04:17:58 VIATESTJ   4038   MVPL3E
      | | - 2002-10-14 04:17:31 VIATESTH   4037   CEEBINIT
      | | - 2002-10-14 04:17:16 VIATESTG   $0CB   MVPL3A
      | |-----|-----|-----|-----|-----|-----|-----|-----|-----|
A pr | |-----|-----|-----|-----|-----|-----|-----|-----|-----|
* *-- PF3=End 7/8=Scroll -----*

--- CLEAR=Exit -----
Key "$elect, "D"elete, "H"old, "R"elease or "P"rint.

```

- 2 Type an action selection to the left of the listed dump. The message line tells you which selection options you can enter for each dump on the list.

Select	To...
D	Deletes the dump. At installation time, if the delete confirmation customization variable is set to YES, the word Pending appears in the Notes column to the right of the dump that you want to delete. Type D in the selection field again to confirm your intention to delete this dump. If delete confirmation is set to NO, the first D entered executes the dump delete process. You can delete as many dumps as you like by keying multiple Ds before pressing Enter. When dumps have been deleted successfully, the word Deleted appears in the Notes column.
H	Holds the dump. SmartQuest is supplied with an optional automatic dump delete facility. This helps maintain the file by deleting dumps that are older than a user-specified number of days. If this feature is active in your installation, you can use this hold selection to exclude individual dumps from the auto-delete process. You can type multiple Hs before pressing Enter. The word Held appears in the Notes column. Use the Release option to delete these dumps when you no longer require them.
P	Submits a Batch job to print one or more dumps. See "Online Print Job Submission" on page 52 for more information about using this option.
R	Releases a held dump.
S	Selects a dump for analysis. You can select a single dump for viewing at any one time. Multiple S options are ignored. When you have selected a dump and pressed Enter, the Details pull-down screen displays. You can also display this screen by positioning the cursor on the Details action bar option and pressing Enter.

Note: _____

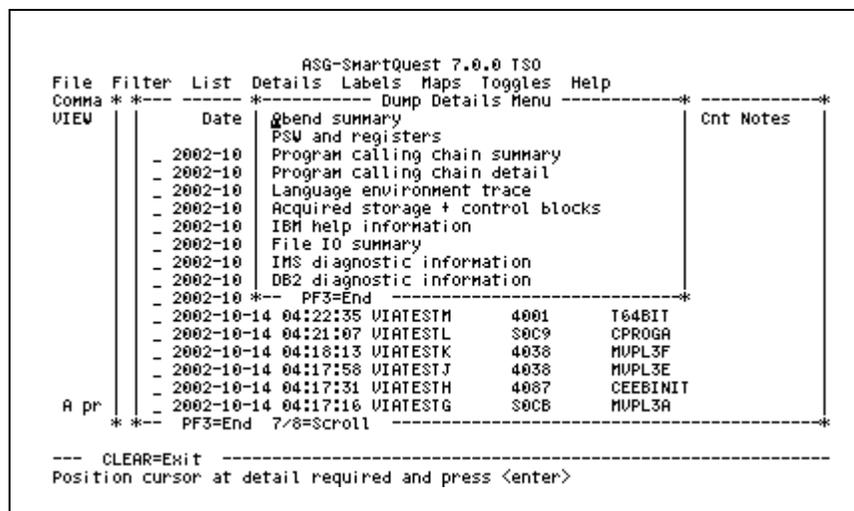
If you do not enter a selection character, an S is assumed for the dump your cursor is on when you press Enter.

You can choose to suppress the capture of duplicate dumps. This feature is optional and is controlled by a customization variable that is set during installation. Where duplicate dumps have been detected and suppressed, a number appears in the Cnt (Count) column to indicate how many times an individual dump has occurred.

The Details Action Bar Option

The Details action bar option allows you to choose the areas or details of the selected dump that you want to analyze. Choosing the Details option or typing DETAILS displays the Dump Details Menu screen shown in [Figure 21](#). The screen is also displayed automatically when you select a dump from the Selected Dump List pull-down screen.

Figure 21 • Dump Details Menu Pull-down for a CICS Dump



Select an analyze option by positioning your cursor on an option on the Dump Details Menu pull-down and pressing Enter. This pull-down is slightly different depending on whether you selected an MVS or a CICS dump. These are the possible choices on the pull-down:

MVS Pull-down Options	CICS Pull-down Options
Abend summary	Abend summary
PSW and registers	PSW and registers
Program chain calling summary	Program chain calling summary
Program chain calling detail	Program chain calling detail
Language environment trace	Trace table entries
Acquired storage and control block	Acquired storage and CICS control blocks
IBM help information	Last 3270 display
File IO summary	IBM help information (from DFHCMACD)

MVS Pull-down Options	CICS Pull-down Options
IMS diagnostic information	IMS diagnostic information
DB2 diagnostic information	DB2 diagnostic information

Not all of the options on this pull-down may be selectable. For example, IMS diagnostic information is not available if the abending task does not use DL/1. Available options are highlighted (shown in white), and non-available options are normal intensity (shown in blue).

Abend Summary

The Abend summary option enables you to quickly resolve simple dumps such as abends due to non-handled CICS conditions. A sample of the abend information included on the Abend Summary screen for a CICS transaction task is shown in [Figure 22](#).

You can access this screen from the Dump Details Menu pull-down screen or by typing SUMMARY.

Figure 22 • CICS Abend Summary Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Abend summary -----
Transaction..... IQLK           Date/Time..... 2002-10-16 / 04:23:40
Task number..... 265           Dataloc/Datakey.. Any / User
Terminal..... L007           CICS applid/rel.. VIACDA2 / 620
Abend code..... APCT         User id..... CICSUSER
Program/map not defined to CICS, disabled or load failed

Abend PSW..... 0EE0CC7A       AMode..... 31
Abend occurred at offset 00016A in program TESTPROG
                   At offset 000142 in CSECT TESTPROG

Failing instruction: 05EF BALR 14,15

Last CICS call made was EXEC CICS LINK
Resource..... TESTPROG       Eibresp..... NORMAL
Eibresp2..... 00000000

--- CLEAR=Exit 1=Help 3=End -----

```

The top portion of the Abend Summary screen provides general information about the abending transaction task or job, including a brief description of the abend code.

Note:

These descriptions are located in the VSAM KSDS CODES file generated at product installation. See your system programmer for assistance with adding your own user abend code descriptions to this file.

The main portion of the screen is a detailed analysis of the point of abend, including the abend address, the offset in program, the offset in CSECT and, in the case of PL/I, the offset in PROCEDURE or BEGIN block. The failing instruction is also disassembled and its operands broken down into address and contents. Operands that are in fetch or write-protected storage or that contain invalid packed-decimal data (when the instruction is a packed decimal instruction) are clearly marked. For COBOL programs, the BL/BLL cell number and offset in BL/BLL cell are also shown when operands are located within the BL/BLL cells.

If you are working in a CICS environment, the bottom 3 lines of the screen are an extract from the EIB. It shows the last CICS CALL made, the response received and, for CICS/ESA where EIBRESP2 is not zero, a brief description of the EIBRESP2 field is given. For example:

```
Last CICS call made was EXEC CICS RECEIVE MAP
Resource..... MAPA           Eibresp..... NORMAL
Eibresp2..... 00000000

Last CICS call made was EXEC CICS SEND
Resource..... $003           Eibresp..... NORMAL
Eibresp2..... 00000000
```

The PSW address and any operand addresses are shown highlighted or in light blue. These addresses are links. You can place your cursor on any address and press Enter to ZOOM to additional information.

- ZOOMing on the PSW address takes you to the point of the abend and shows the source, if source information is available for the failing program. If a Source display is not available, SmartQuest provides a Disassembly display. For more information about these displays, see ["The Source Display" on page 73](#) and ["The Disassembly Display" on page 82](#).
- If the operand is within program storage, ZOOMing on the operand addresses displays the source or disassembly. If it is within a control block, Assembler DFHEISTG, PL/I DSA, COBOL Working Storage, COMMAREA, or any piece of GETMAINed storage, the display is shown mapped with field names when possible or as standard dump format (i.e., hexadecimal on the left, character on the right). Areas overlaid with field names are referred to as Mapped displays. See ["The Mapped Display" on page 85](#) for more information about Mapped displays.
- The abend code may also be available for ZOOM use. This is true for all system abend codes that have an entry on the supplied IBM Help File (DDNAME=MVCODE1). This allows you to position the cursor on the abend code and press Enter for a full description of the code from the IBM system codes manual. Some IBM code descriptions refer you to an IEC message. If this is true, the associated IEC message appears on the summary display and can also be used for ZOOMing to a full description of the message.

- If the LE Condition Msg field displays, place your cursor on the message number and press Enter to display the LE Condition Description Message screen, shown in [Figure 23](#). This is a Batch feature only.

Figure 23 • LE Condition Description Message Screen

```
ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1-----LE Condition Description Message -----
CEE3250C The system or user abend U1041 R=NULL      was issued.

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
```

PSW and Registers

The PSW and Registers option displays the PSW and Registers screen, which provides the PSW and all the register contents, including the floating point registers, at the time of abend. This screen also includes a brief description of the area of each register address, along with the offset into that area. If no such description appears, this indicates that the address in that register is not within the captured storage areas for this dump.

You can access this screen from the Dump Details Menu pull-down screen or by typing REGS. The PSW and Registers screen, shown in [Figure 24](#), displays.

Figure 24 • PSW and Registers Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- PSW and Registers -----
PSW: 000000000007606 offset 0002D6 within the program MUCOBVA
R0 : 0000000000000000
R1 : 00000000500076B0 offset 000380 within the program MUCOBVA
R2 : 0000000000000040
R3 : 00000000008D3CD4
R4 : 000000000000760C offset 0002DC within the program MUCOBVA
R5 : 0000000050007694 offset 000364 within the program MUCOBVA
R6 : 00000000000073D0 offset 000000 within the working stge for pgm MUCOBVA
R7 : 00000000000075DF offset 000207 within the TGT for program MUCOBVA
R8 : 00000000000075E0 offset 000208 within the TGT for program MUCOBVA
R9 : 0000000000007668 offset 000338 within the program MUCOBVA
R10: 0000000000007330 offset 000000 within the program MUCOBVA
R11: 0000000000007330 offset 000000 within the program MUCOBVA
R12: 00000000000075F0 offset 0002C0 within the program MUCOBVA
R13: 00000000000073D8 offset 000000 within the TGT for program MUCOBVA
R14: 0000000000007602 offset 0002D2 within the program MUCOBVA
R15: 000000005000766A offset 00033A within the program MUCOBVA
FPR0 000000000000000 2 000000000000000 4 000000000000000 8 000000000000000
--- CLEAR=Exit 1=Help 3=End -----

```

The format of the *Rnn* commands is *Rnn* or *Rnn+xxx*, where *nn* is the register number that you require and *xxx* is an optional hexadecimal offset from 000 to FFF. You can also use the PSW command to display the failing source line or point of error disassembled when source is not available.

You can ZOOM to the PSW address and each of the general register addresses by positioning the cursor on the address and pressing Enter. Depending on the type of address, one of these displays appears:

Display	Description
Core	Provides a standard dump format with hexadecimal data on the left and character data on the right.
Disassembly	Displays when source support is unavailable for a program. Highlights the failing or linking instruction, provides the position of each CSECT, and includes information for diagnosing problems caused by a source and object misalignment (if source is available).
Map	Attempts to automatically overlay the storage area with its field names when an area of non-program storage is selected. For each field, the display gives the field name, length, data-type, address, offset within the area and contents at the time of the abend.

Display	Description
Source	Provides access to the source code. When source support information is available, the Source display is shown in preference to any other display type.
Trace (CICS)	Provides the trace table for examination if you have trace on in the region where the abend occurred.

Note:

The type of display shown when you choose an address depends on whether source support is available, and what type of area is selected (for example, program storage or GETMAINed user storage).

Program Calling Chain Summary

The Program Calling Chain Summary screen displays an overview of the calling chain. It includes the abend/link address; the address of the working storage (COBOL), DSA (PL/I) or the DFHEISTG (CICS); and the address of any COMMAREA passed to it. All of these are available to use for ZOOMing by positioning the cursor and pressing Enter. You can also ZOOM on the program name, which takes you to the Program Calling Chain Detail display for the selected entry.

You can access this screen from the Dump Details Menu pull-down screen or by typing SPROGS. The Program calling chain summary screen is shown in [Figure 25](#).

Figure 25 • Program Calling Chain Summary Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Active program calling chain summary -----
Abnd/Lnk WKS/DSA Program CSECT PL/1 Procedure name

> 000EBE74 00000000 DFSEIPB0 DFSEIPB0 N/A
000643A0 00000000 IGZCFCC IGZCFCC N/A
0C9D8168 0CBE90B8 MVDLIB MVDLIB N/A
000B3280 00000000 MVDLIB MVDLIB N/A
0005B96E 00000000 DFSFLST0 DFSFLST0 N/A
0005E94E 00000000 CEEBINIT CEEBINIT N/A
00FCCE40 00000000 DFSBC000 DFSBC000 N/A
0005B622 00000000 DFSPCC30 DFSPCC30 N/A
00007F96 00000000 DFSRRC00 DFSRRC00 N/A

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
Abending program entry marked ">"

```

The most recent entries are listed first. The abending program entry is clearly marked with a greater than sign (>). Entries after the abending program entry are programs that are at higher levels in the calling chain.

The Program calling chain summary screen displays entries for the programs invoked through a CICS LINK, COBOL programs invoked through a CALL, and PL/I procedures invoked internally or dynamically. An entry appears in this chain for these programs:

- All programs that are CALLED through an EXEC CICS LINK
- All statically linked and CALLED COBOL programs
- All dynamically CALLED COBOL programs
- All internal PL/I procedures
- All statically linked and CALLED PL/I procedures
- All dynamically fetched and CALLED PL/I procedures

You can scroll this screen using the Up and Down PF keys. The first entry is the abending program and each subsequent entry represents the next higher level program in the chain.

The Program Calling Chain Detail

You can access the Program calling chain detail screen from the Dump Details Menu pull-down screen or by typing PROGRAM (or PROGS). The Program Calling Chain Detail screen is shown in [Figure 26](#).

Figure 26 • Program Calling Chain Detail Screen

```
ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Active program calling chain detail -----
                                                    Entry 01 of 09

Abending instruction is at address 000EBE74
Offset 00181C in program DFSEIPB0
Offset 00181C in CSECT DFSEIPB0

Load library..... IMS710.SDFSRESL
Load point..... 000EA658           AMode..... 31
Entry point..... 000EA658           Language..... Assembler
Program length... 000019A8           Link-edit date... 10 Jan 2001

RSA..... 00000000 .....Length..... 00000000

No source file information for this program
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
```

The Program calling chain detail screen identifies these items:

- The offset in program and in CSECT. If you are using PL/I, the offset is shown in the PROCEDURE or BEGIN block of the failing or linking statement.
- Information about the load module itself. This includes the load library name, the load point and entry point addresses, program length, AMODE, language, link-edit date and, in the case of CICS/ESA, the EXECKEY and DATALOC definitions for this program.
- The storage associated with this module. This includes the DFHEISTG for Assembler programs; Working Storage and TGT for COBOL programs; DSA and Static storage for PL/I; and any COMMAREA used. For each of these the address and length are given.
- Whether source-level support is available for this program. The dataset name of the SmartQuest source file containing this information is shown, and the date this information was added to the file.
- The dataset name of the analyze source file. If source information is not available, a message to that effect displays.

Navigating

The abending and linking addresses, the entry point address, and the addresses of the associated storage areas are all shown highlighted or in light blue. You can tab to these addresses and ZOOM to any location by positioning the cursor on the address and pressing Enter. The screen shown depends on the type of area and whether source-level support is available.

Each entry in the calling chain has its own screen. The top right corner shows the total entries in the calling chain and which entry you are currently viewing. The abending program is always shown first, regardless of its position in the chain. From the abending program entry, you can use the UP and DOWN commands to scroll through all the entries.

When you select the Details ▶ Program calling chain detail, Entry 1 displays, which is the abending program. Use the scroll keys to view the other entries. A sample of an entry higher in the calling chain (Entry 2 of 9) is shown in [Figure 27](#).

Figure 27 • Program Calling Chain Detail - Entry 2 of 9

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Active program calling chain detail -----
                                                    Entry 02 of 09

LINK or CALL was issued at address 000643A0
Offset 000270 in program IGZCFCC
Offset 000270 in CSECT  IGZCFCC

Load library..... CEE.SCEERUN
Load point..... 00064130      AMode..... 31
Entry point..... 00064130      Language..... Assembler
Program length... 00000E90      Link-edit date... 16 Feb 2000

RSA..... 00000000 .....Length..... 00000000

No source file information for this program
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

BL/BLL Cells

For COBOL programs you also see a BL/BLL summary selection field. This is designed to assist COBOL programmers who do not have source support available for the abending or calling programs. By positioning the cursor on the word Summary in the BL/BLL Cells field on the Program calling chain detail screen, you can display a full list of COBOL BL cells and BLL cells as shown in [Figure 28](#).

Figure 28 • Sample BL/BLL Cell Summary Display Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- BL/BLL Cell Summary Display -----
Id.      Address      Length

BLU= 001 000073D0 00000008
BLL= 003 80006FFE 00001000 (Default length of 4K assumed)

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

For each BL/BLL cell, the address and the length displays. In COBOL 2 and COBOL for MVS and VM, the BL cells start with the number 0 and the BLL cells start with number 1. Position the cursor on any address to display from the start of that BL/BLL cell. The offset shown probably does not start at zero since for many Batch programs the working storage is within program storage. SmartQuest shows the offset within the program storage for each BL/BLL cell. You can use the +xxx command to view a field at a particular offset in a BL/BLL cell.

For example, these are the steps you perform to view a field at offset X'12C' in BL cell 2:

- 1 ZOOM to BL cell 2.
- 2 Type the offset (for example, +12c) and press Enter to view the field at X'12C' in the BL cell.
- 3 Return to the Program calling chain detail display by pressing the PF3 key.

Object/Source Mismatch

One of the most common problems with source-level support is the source information on the SmartQuest file not being valid for the load module in use. This can result in a source and object misalignment and can cause the product to display the wrong failing or linking statement. To avoid this problem, the highlighted message `Warning: Possible source object mismatch` displays if the creation date on the source file information is different from the link-edit date.

Acquired Storage and Control Blocks

The Acquired storage & control blocks screen displays all the major MVS, CICS, DL/1, and DB2 control blocks you might want to examine in a dump. It also includes this information:

- All storage areas acquired directly by the task or by CICS on behalf of the task.
- All storage areas acquired by the job and any programs that have been loaded by the job but which do not appear in the calling chain.

You can access this screen from the Dump Details Menu pull-down screen or by typing STORAGE. You can also use the abbreviated control block name as a command to display the individual control blocks. For example, type EIB to display the Exec Interface Block or TCB to display the Task Control Block.

Note: _____

If there is more than one of a particular control block (for example, TIE), only the first displays in response to the short name command. To display others, use the ZOOM feature on the Acquired storage & control blocks screen.

Figure 29 shows the control blocks and storage areas for a small sample CICS task.

Figure 29 • Acquired Storage & CICS Control Blocks Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Acquired storage + CICS control blocks -----
Id.      Address  Resource Description                               Length  Notes
CEECA0  0006BAC0    LE Common anchor area                             000360
CEEC1B  0007E7C8    LE Condition information block                     000108
CEEMS1B 0007E8D4    LE Machine state information block                 000080
CEEEDB  0006A9D0    LE Enclave data block                             0000A4
CEEPCB  0006A560    LE Process control block                           000048
TCB     008D20D8    Task control block                                000158
ASCB    00FB0660    Address space control block                        000180
ASTE    01B38880    Address space secondary table entry                000040
ASXB    008FDE90    Address space extension block                     0000F8
ASSB    02442C00    Address space secondary block                     000190
RB      008FD6C0    Request block                                     0000C8
XSB     7FFFC3A8    Extended status block                             000080
DEB     008AEA28 SYS00009 Device extent block                    000020
ACB     008AEA44 SYS00009 User requested area                       00004C
DEB     008AED68 SYS00003 Device extent block                    000020
ACB     008AEE04 SYS00003 User requested area                       00004C
--- CLEAR=EXIT 1=Help 3=End 7/8=Scroll -----

```

Acquired Storage and Control Blocks Format

Each block or area contains a short name, an address, a longer description, and the length. The Notes column is normally blank.

Use the ZOOM feature to display any area by positioning the cursor on the address and pressing Enter. Most control blocks are automatically displayed as mapped with field names. Other control blocks and acquired storage are shown in standard dump format but can be manually mapped with field names if source-level support for the abending program is available.

Captured Control Blocks (CICS)

The Acquired storage & control block screen also includes any loaded programs that are in the tasks LLA list. The Notes column contains the message Bad SAA if a corrupted storage accounting area is detected.

Control blocks that may be captured and their short names are listed below. Those areas that should be automatically mapped with field names are marked with an asterisk (*).

Control Block	Description
* EIB	Exec interface block
* TACB	Task abend control block
* UTCA	User task control area
* STCA	System task control area

Control Block	Description
TWA	Transaction work area
* CSA	Common system area
* CSA OPFL	Optional features list
CWA	Common work area
* TCTTE	Terminal control table entry
TCTUA	Terminal control table user area
* EIS	Exec interface structure
* EIUS	Exec interface user structure
* SYSEIB	System exec interface block
* APE	Active program entry
* PCT	Program control table entry
* PPT	Processing program table entry
TIE	Task interface element
RIE	Request interface element
* LIFO	LIFO parms/kernel stack entry
* DLP	DL1 parameter area
* PST	DL1 partition specification table
* SCD	DL1 system contents directory
* ISB	DL1 interface scheduling block
* RSB	DL1 remote scheduling block
* UIB	DL1 user interface block
* PCB	DL1 program communication blocks
* DIB	DL1 interface block

Control Block	Description
* PAPL	DBCTL DRA architecture parm list
PAC	DBCTL DRA control block
PATE	DBCTL DRA thread entry
GLOBDBAT	DBCTL DFHDBAT global area
RCT	DB2 resource control table
RCTE	DB2 resource control table entry
CCTE	DB2 CICS connection control table
CSUB	DB2 CICS connection subtask area
DB2 TCB	DB2 subtask TCB

Captured Control Blocks (MVS Only)

Control blocks that may be captured and their short names are listed below. Those areas that should be automatically mapped with field names are marked with an asterisk (*).

Short Name	Control Block Description
* CEECAA	LE Common Anchor Block
* CEECIB	LE Condition Information Block
CEEMSIB	LE Machine State Information Block
* CEEEDB	LE Enclave Data Block
* CEEPCB	LE Process Control Block
* TCB	Task Control Block
* ASCB	Address Space Control Block
* ASSB	Address Space Secondary Control Block
* ASTE	Address Space Secondary Table Entry
* ASXB	Address Space Extension Block
QEL	Queue Element

Short Name	Control Block Description
QCB	Queue Control Block
* RB	Request Block
* XSB	Extended Status Block
* DEB	Device Extent Block
* TIOT	Task Input Output Table
* SSAT	Sub-System Affinity Table
* STCB	Secondary Task Control Block
* SCB	STAE Control Block
* SCBX	STAE Control Block Extension
* TCBEXT2	Task Control Block Extension
RTM2WA	RTM2 Work Area
* LLE	Load List Element
* CDE	Contents Directory Entry
* XTLST	Extent List
* DBPCB	DL1 DB Program communication block
* FPPCB	DL1 Fast Path Program communication block
* IOPCB	DL1 IO Program communication block
* ALTPCB	DL1 Alternate Program communication block
* DIB	DL1 interface block

File IO Summary Display (MVS Only)

The File IO Summary Display screen, shown in [Figure 30](#), lists all open files (including VSAM files) and the address and length of the last record read from or written to each file.

Figure 30 • File IO Summary Display Screen

```
ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- File IO Summary Display -----
File      Rec Adr  Length
SYSOUT   000EC0B8 00000079

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
```

You can view the last record for each file by ZOOMing on the Rec Adr field to the right of each file name.

Last 3270 Screen (CICS Only)

The Last 3270 display buffer screen for the dumping task is available only if the task actually terminates after dumping. It is not available for dumps produced by an explicit EXEC CICS DUMP. The displaying of the last 3270 screen is the only piece of conversational code in the SmartQuest dump viewer. The remainder of the logic uses the more resource-efficient pseudo-conversational method.

If the last 3270 option is available (highlighted on the Dump Detail Menu), selecting it displays the screen with the cursor inserted at the position it held at the time of abend. Press Enter to exit the Last 3270 screen and return to the previous SmartQuest dump analysis screen.

You can access this screen from the Dump Details Menu pull-down screen or by typing SCRN or XSCRN. The XSCRN command displays the screen in normal dump format. This enables you to examine the buffer control characters.

[Figure 31](#) is an example of the Last 3270 screen.

Figure 31 • Last 3270 Display Buffer

```

ASG-SMARTQUEST SAMPLE ABEND MENU
=====
A - COBOL ABEND ASRA      (DATA EXCEPTION)
B - COBOL ABEND AEIL     (FILE NOT FOUND)
C - COBOL ABEND AICA     (INFINITE LOOP TIME OUT)
D - COBOL ABEND AEIØ    (LINK TO NONEXISTENT PROGRAM)
E - COBOL EXEC DL/1 ABEND
F - COBOL EXEC CICS DUMP
=====
G - PL/1 ABEND ASRA      (DIVIDE EXCEPTION)
H - PL/1 ABEND AEIL     (FILE NOT FOUND)
I - PL/1 ABEND AICA     (INFINITE LOOP TIME OUT)
J - PL/1 ABEND AEIØ    (LINK TO NONEXISTENT PROGRAM)
K - PL/1 EXEC DL/1 ABEND
L - PL/1 EXEC CICS DUMP
=====
Z - EXIT
=====
? - ALL OTHER SELECTIONS GENERATE AN AEIØ
=====
ENTER SELECTION CODE
A_

```

IBM Help Information

For CICS, the IBM Help Information screen displays information relating to all CICS abend codes. With CICS/ESA, IBM supplies a file with the DD name DFHCMACD, which contains this information.

For MVS, the IBM help information screen provides information extracted from IBM manuals that relates to abend code and IEC message descriptions. This help file contains material that is the copyright of IBM, and is used with SmartQuest for MVS with permission of IBM. The file as supplied must not be used for any other purpose.

To access the IBM help, follow this step:

- ▶ Select Details ▶ IBM help information or type IBMHELP. A sample of the displayed information is shown in [Figure 32](#).

Figure 32 • Help Information for Abend Code Screen

```
ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Help information for abend code ASRA -----

EXPLANATION: The task has terminated abnormally because
of a program check.

SYSTEM ACTION: The task is abnormally terminated and CICS
issues either message DFHAP0001 or DFHSR0001. Message
DFHSR0622 may also be issued.

USER RESPONSE: Refer to the description of the associated
message or messages to determine and correct the cause of
the program check.

MODULE: DFHSRP

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
```

To view additional help information, use the IBMHELP command with the required abend code as a parameter. For example, type IBMHELP ASRA for information about the abend code ASRA. Type IBMHELP IEC141I for a description of the message IEC141I.

When the information is too large to fit on a single screen, the Up and Down PF keys are enabled.

The Trace Display (CICS Only)

If you have trace on in the region where the abend occurred, the trace table is available for examination.

To access this information, follow this step:

- ▶ Select Details ▶ Trace table entries or type TRACE. For CICS/ESA, the Trace table display looks similar to the example shown in [Figure 33](#).

Figure 33 • Trace Table Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Trace table -----
Task      Trace point  Description
00265 QR   PG 0602 PGLD  EXIT  LOAD/EXCEPTION      PROGRAM_NOT_LOADABLE,0CB
00265 QR   AP 2000 PCPG  ENTRY ABEND
00265 QR   AP 0741 ABAB  ENTRY CREATE_ABEND_RECORD 0D70A931 , 00000010,XXXX
00265 QR   SM 0301 SMGF  ENTRY GETMAIN          115,NO,00,TACB,CICS
00265 QR   SM 1201 SMPQ  ENTRY ALLOCATE_PAGEPOOL_STORAGE 0CBA20D4,130,NO
00265 QR   SM 1202 SMPQ  EXIT  ALLOCATE_PAGEPOOL_STORAGE/OK 1000,0ED86000,0CB
00265 QR   SM 0302 SMGF  EXIT  GETMAIN/OK          0ED86008,120
00265 QR   AP 0742 ABAB  EXIT  CREATE_ABEND_RECORD/OK 0ED86008
00265 QR   AP 0741 ABAB  ENTRY START_ABEND      0ED86008,YES,NO
00265 QR   DU 0101 DUDU  ENTRY TRANSACTION_DUMP  APCT,YES,YES,YES,YES,YES
00265 QR   DU 0600 DUTM  ENTRY LOCATE_TRAN_DUMP/OK  APCT
00265 QR   DU 0601 DUTM  EXIT  LOCATE_TRAN_DUMP/OK  FFFFFFFF,1,0,0,0,NO,
00265 QR   AP D510 APEX  ENTRY INVOKE_USER_EXIT  XDUREQ,YES,0D70B118 , 00
00265 QR   AP D511 APEX  ENTRY PARAMETERS-UNIQUE-TO-EXIT-POINT:
00265 QR   AP D512 APEX  ENTRY PARAMETERS-UNIQUE-TO-EXIT-POINT:
00265 QR   AP D502 SUEX  EVENT LINK-TO-USER-EXIT-PROGRAM AT EXIT POINT .S....
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll 10/11=Left/Right -----

```

Trace Table Format

The Trace table is formatted using the IBM-supplied trace formatting routines for printing, which format the trace for 132 columns. To view the portion on the right side of your screen, use the Right PF key to scroll right.

The Trace table is in conventional sequence, that is, oldest first. When you select this option, the screen shown is the last page of the trace because this is where the pertinent entries are likely to be.

The Trace table includes all entries for the abending task, from initial detection to the point where SmartQuest is passed control of the abend. The table includes entries for other tasks that may be executing at that time.

The Trace table screen also has a FIND command with this format:

```

FIND      string          FIRST  start-column  end-column
F         'quoted string'  LAST
         X'hex-string'    PREV
                                NEXT

```

Use the RFIND key to repeat the last FIND command.

Expanded Trace Table

On the CICS/ESA Trace table screen, use the ZOOM feature to display the Expanded trace table entry screen shown in [Figure 34](#).

Figure 34 • Expanded Trace Table Entry Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Expanded trace table entry -----
PG 0602 PGLD EXIT - FUNCTION(LOAD) RESPONSE(EXCEPTION)
REASON(PROGRAM_NOT_LOADABLE) LOAD_POINT(0CB77702) ENTRY_POINT(8E9D3
PROGRAM_LENGTH(19D3020)
TASK-00265 KE_NUM-0017 TCB-QR /008CDAD8 RET-8CFDAFD6 TIME-B862DD93321EF600
-INTERVAL-**,****** =000284=
1-0000 00400000 00000099 00000000 00000000 *. .....r.....*
0010 BFE00000 00000000 02740203 E7E7E7E7 *.\.....XXXX*
0020 40404040 0CB77702 8E9D3001 019D3020 * .....*
0030 01020290 0C90CA9D 0D70A0A8 0C90C9D4 *.....y..I**

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

This screen includes only a single expanded trace entry. If you are not using a 132-column terminal, the entry is reformatted to fit an 80-column display. You can scroll within expanded trace entries using the Left and Right PF keys. Use the PF3 key to return to the abbreviated Trace table screen.

Language Environment Trace (MVS Only)

The Language Environment Trace option lets you view the trace entries. If you are using the Language Environment run-time libraries with the trace run-time option on and trace entries have actually been produced, these are captured and preserved on the SmartQuest for MVS dump file.

To access the Language Environment trace entries, follow this step:

- ▶ Select Details ▶ Language Environment Trace or type LETRACE. The Language Environment Trace Display screen, shown in [Figure 35](#), displays.

Figure 35 • Language Environment Trace Display Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Language Environment Trace Display -----
                                                    Entry 001 of 032

Time..... B8605936256F0D40  Thread ID..... 8000000000000000
Member ID.... 03  Flags..... 000000  Entry Type..... 00000001

 94818995 40404040 40404040 40404040  Main
40404040 40404040 40404040 40404040
60606E4D F0F8F55D 40979989 95A3864D  -->{085} printf(
5D404040 40404040 40404040 40404040  )
40404040 40404040 40404040 40404040
40404040 40404040 40404040 40404040
40404040 40404040

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

The screen displays a single entry per screen, with the top right showing both the current entry and the total number of entries. They are listed from oldest to newest and when initially selected you are always shown the first (oldest) entry. Use the Up and Down keys to scroll the entries.

Note:

For a description of the trace entry contents see the *Language Environment Messages and Debugging* manual.

IMS Diagnostic Information (MVS Only)

The IMS Diagnostic Information screen displays information captured for the last DL/1 CALL that your Batch or online IMS job issued. This capture is possible in the majority of cases, depending on whether the DL/1 CALL save area is still available and intact. The information is always captured for EXEC DLI CALLS. The address of the last DL/1 CALL forms a part of the displayed information in the case of EXEC DLI CALLS. It is not available for CALLS using the CALLDLI interface.

Failed PSB schedule CALLS using the CALLDLI interface are not captured. This is because the ISB is not yet generated and the CALL parameter area no longer exists. For schedule failures using the CALLDLI interface, examine the trace table to determine the reason for the failure.

The information captured differs depending on whether you are using Remote DL/1 or DBCTL. It also depends, to a lesser extent, on whether you are using the EXEC DLI interface or the CALLDLI interface.

The IMS Diagnostic Information screen displays this information:

- The CALL parameters and IMS CALL history data. You can also display a history summary of the last 5 CALLS.
- Call addresses (for EXEC DLI CALLS) that can be used for ZOOMing. It also shows the DL/1 status code returned by the CALL and provides a brief description of this code.
- Address of the DIB (if the CALL was an EXECDLI CALL) and the name of the PSB being used in MVS. You can ZOOM on the DIB address, if present, to view its contents mapped with field names.
- Details of the DL/1 CALL parameters and the PSB name. The screen lists the function code, the PCB address, and the IO area address, and for each SSA it gives the segment name and address. You can use the ZOOM feature on all parameter addresses.

To view the CALL history

- 1 Select Details ► IMS diagnostic information or type DL1 (or DLI). The IMS Diagnostic Information screen, shown in [Figure 36](#), displays.

Figure 36 • IMS Diagnostic Information Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- IMS Diagnostic Information -----
IMS System id.... IVP1
PSB name..... DFHSAM24      PCB List..... Available
Last CALLDLI returned a status code of "AC"
Hierarchic error in SSAs
Function..... GU
PCB address..... 0000DCD0      PCB Formatting... Available
IO area address.. 0CB1C145      PCB call history. Available
Number of SSAs... 0001
SSA.(001)..... 0CB1C120 BEETROOT(PARTKEY =02MS16995-28 ).

--- CLEAR=Exit 1=Help 3=End -----

```

Note:

If this were a CICS dump, the PAPL Address and DRA Name fields display.

- Place the cursor on the word Available in the PCB Call History field and press Enter to display the Call History Display (from JCB) screen, shown in [Figure 37](#).

Figure 37 • Call History Display (from JCB) Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1-----Call History Display (From JCB) -----
- Function: GHU or GU
  Status: "GC" (First byte assumed using function)
  Crossing unit of work boundary
- Function: PURGE
  Status: "??" (Could not determine 1st byte of status)

- Function: GHU or GU
  Status: "GC" (First byte assumed using function)
  Crossing unit of work boundary
- Function: PURGE
  Status: "??" (Could not determine 1st byte of status)

- Function: GHU or GU
  Status: "GC" (First byte assumed using function)
  Crossing unit of work boundary
- Function: PURGE
  Status: "??" (Could not determine 1st byte of status)

--- CLEAR=Exit 1=Help 3=End -----

```

To view the PCB list

- From the IMS Diagnostic Information screen, place the cursor on the word Available in the PCB List field and press Enter. The Acquired storage + CICS control blocks screen, shown in [Figure 38](#), displays.

Figure 38 • Acquired Storage + CICS Control Blocks Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Acquired storage + CICS control blocks -----
Id.      Address  Resource Description          Length  Notes
IOPCB    0000DC58      DL1 program communication block 000078
DBPCB    0000DCD0 DI21PART DL1 program communication block 000088
JCB      0C978D94 DI21PART DL1 journal control block      000100

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

Note:

The JCB field only displays for Batch dumps.

- Place your cursor on the highlighted PCB Address field and press enter to display the Map display for that PCB, as shown in [Figure 39](#).

Figure 39 • Map Display of the DBPCB

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1-----Map display of the DBPCB (DI21PART)-----
Field name          Length Type  Address  Offset  Contents
DBPCBLEN.....      2 Binary 0000DCD0 000000  +80
DBPCBPLN.....      2 Binary 0000DCD2 000002  +56
DBPCBNUM.....      2 Binary 0000DCD4 000004  +2
DBPCBFLG.....      1 Hex   0000DCD6 000006  X 00
DBPCBFL2.....      1 Hex   0000DCD7 000007  X 20
DBPCBEST.....      2 Char  0000DCD8 000008
DBPCBESC.....      2 Char  0000DCDA 00000A
DBPCBFL3.....      1 Hex   0000DCDC 00000C  X 00
.....              1 Hex   0000DCDD 00000D  X 00
.....              2 Char  0000DCDE 00000E  X 0000
DBPRTEA.....      4 Binary 0000DCE0 000010  +9236560
DBPCBEPC.....      4 Binary 0000DCE4 000014  +0
DBPCBCTL.....      4 Binary 0000DCE8 000018  +179897896
DBPCBNAM.....      8 Char  0000DCEC 00001C  X 0000000000000000
DBPCBXTN.....      4 Binary 0000DCF4 000024  +56664
DBPCBSGL.....      4 Binary 0000DCF8 000028  +0
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

- From the IMS Diagnostic Information screen, place your cursor on the word Available in the PCB Formatting field. You can also access this screen by placing your cursor on the highlighted PCB Resource field on the Acquired storage + CICS control blocks screen and press Enter. The Formatted PCB Display screen, shown in [Figure 40](#), displays. This screen is available only for DB PCBs. If the last CALL used on IO PCB, formatting is not available.

Figure 40 • Formatted PCB Display Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1-----Formatted PCB Display -----

DBD Name..... DI21PART
Level Feedback... 00
Status Code..... AC
Hierarchic error in SSAs
Proc Options.... A
Segment Name.....
SenSeg Count.... 00000005
Key Feedback Len. 00000000
Key Feedback Adr. 0000DD2C

--- CLEAR=Exit 1=Help 3=End -----

```

- Place the cursor on the JCB Address field and press Enter to display the Call History Display (from JCB) screen, shown in [Figure 37 on page 49](#).

DB2 Diagnostic Information

The DB2 diagnostic information option displays information captured relating to the last DB2 CALL made. The actual CALL addresses are obtained only if the abend occurs in DB2 itself because the save area is lost on return from the CALL.

Note:

To use DSNTIAR formatting of the SQLCA diagnostics, the DB2 library containing the DSNTIAR and DSNTIA1 modules must be in the LNKLST, or copied to the SmartQuest LNKLST library.

To access the DB2 diagnostic information, follow this step:

- 1 Select Details ► DB2 diagnostic information or type DB2. The information captured and presented on the DB/2 Diagnostic Information screen, shown in [Figure 41](#), displays.

Figure 41 • DB2 Diagnostic Information Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- DB2 Diagnostic Information -----
Last EXEC SQL returned a status code of +000
Successfully executed
DB/2 subsystem... D71A
Plan..... MUDB2CB
EXEC SQL type... FETCH
Statement..... 143
Section..... 1
SQLCA address... 0CB33498

Total variables.. 5
  Address Length Type Indicator
001 OUT 0CB33160 6 CHAR 00000000
002 OUT 0CB33166 15 CHAR 00000000
003 OUT 0CB33175 3 CHAR 00000000
004 OUT 0CB33178 36 CHAR 010A4C00
005 OUT 0CB3319C 9,2 DECIMAL 00E00048

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

- 2 Position the cursor on the SQL status code (+000) and press Enter to display the Formatted SQLCA Display (Using DSNTIAR) screen.

The DB2 Diagnostic Information screen displays this information:

- Fields on the left display information for a Batch DB2 dump, while fields on the right are unique to CICS.

- Details of the SQL response code and a brief description of this code. It also contains these details:
 - DB2 control blocks used by the transaction. You can display these blocks by positioning the cursor on the address of the block that you want to examine and pressing Enter.
 - SQL response code and a brief description of this code. It also contains details of the DB2 system plan, some SQL statement information, and the SQLCA address. To view the SQLCA contents ZOOM on the address.
- DB2 parameters for the last CALL. It shows the address of each parameter, its length, its type, the address of any associated indicator variable, and whether the variable is to be used for input or output. The first five parameters are displayed. Any additional parameters can be shown by using the Up and Down scroll keys. You can use all parameter addresses and indicator variable addresses to ZOOM to these fields.

Online Print Job Submission

If you specify PRINT=YES on the ASG-SmartQuest - Customization - MVS Product Parameters screen (see the *ASG-SmartQuest Installation Guide* for more information), an INQUDUMP DD is generated and a formatted abend dump report is generated.

Note: _____

If you are using an AKR, no source code is included in the INQUDUMP file.

[Figure 42](#) is an example of an INQUDUMP:

Figure 42 • Sample INQUDUMP

```
(c)2002 Copyright ASG, Inc.                ASG-SmartQuest for MVS 7.0                Page 1
##SUM - Abend summary report *****
Job name..... VISQSCOB                    Date..... 2002/11/08
Abend code..... S0C7                      Reason code..... 00000007
A program interruption occurred
Data exception

Abend PSW..... 078D0000 00008382 Ilc 6 Intc 07

Abending instruction details.
Address..... 0000837C                    Amode..... 24
Offset 00064C in program VISQSCOB
Offset 00064C in CSECT VISQSCOB

Failing instruction: FA00 8000 A0AB AP      0(1,8),171(1,10)
Operand 1 at 0004E398 contains 40 Invalid packed
Operand is at offset 000000 in BLW cell 0000
Operand 2 at 00007E63 contains 1F

Registers at entry to abend

R0 00000000B0008DFE R1 0000000000055028
R2 0000000000008226 R3 000000000001D1BC
R4 0000000000004E098 R5 000000004000836A
R6 00000000008C5FF8 R7 0000000000058FB0
R8 000000000004E398 R9 0000000000055028
```

R10 0000000000007DB8 R11 0000000000008154
 R12 0000000000007DB0 R13 0000000000004C370
 R14 0000000050052930 R15 0000000000DA06F0

FPR0 493161FE00000000 FPR2 0000000000000000
 FPR4 0000000000000000 FPR6 0000000000000000

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##CHAIN - Calling chain summary *****

Proceeding forward from TCBFSA

Save area at 00006FA8. EPANAME=VISQSCOB (Invoked via link)
 WD1 00000000 HSA 00000000 LSA 00006BA8 RET 80FCCE40

EPA 00008B70 R0 FD000008 R1 00006FF8 R2 00000040
 R3 008D3CD4 R4 008D3CB0 R5 008F6920 R6 008C5FF8
 R7 FD000000 R8 008F6E40 R9 008F62B8 R10 00000000
 R11 008F6920 R12 00E2385A

Save area at 00006BA8. EPANAME=IGZEINI (Invoked via call)

WD1 00101001 HSA 0001C428 LSA 000000A8 RET 00008DF0
 EPA 80009010 R0 00000000 R1 0004C370 R2 00006BA8
 R3 00008E5E R4 00007D84 R5 00006BFC R6 008C5FF8
 R7 FD000000 R8 80007B44 R9 00000000 R10 00000000
 R11 00000000 R12 00008B70

Invalid Back Chain Detected

Interrupt at 00008382

Proceeding backward from R13

Save area at 00006BA8. EPANAME=IGZEINI (Invoked via call)

WD1 00101001 HSA 0001C428 LSA 000000A8 RET 00008DF0
 EPA 80009010 R0 00000000 R1 0004C370 R2 00006BA8
 R3 00008E5E R4 00007D84 R5 00006BFC R6 008C5FF8
 R7 FD000000 R8 80007B44 R9 00000000 R10 00000000
 R11 00000000 R12 00008B70

Save area at 0001C428. EPANAME=VISQSCOB (Invoked via call)

WD1 00000000 HSA 00006C70 LSA 0004C370 RET 80010280
 EPA 00007D30 R0 00000000 R1 0001AAF0 R2 00000000
 R3 00000000 R4 00000000 R5 00000000 R6 00000000
 R7 00000000 R8 00000000 R9 00000000 R10 00000000
 R11 00000000 R12 0001BAC0

Save area at 00006C70. EPANAME=IGZEPLF (Invoked via call)

WD1 00100001 HSA 00006FA8 LSA 00000000 RET 00007440
 EPA 00007298 R0 00007D30 R1 00006CB8 R2 00006FA8
 R3 00006CD4 R4 00006BFC R5 0000A198 R6 008C5FF8
 R7 FD000000 R8 00006BA8 R9 0001AAF0 R10 00000000
 R11 00009198 R12 00000000

Save area at 00006FA8. EPANAME=VISQSCOB (Invoked via link)

WD1 00000000 HSA 00000000 LSA 00006BA8 RET 80FCCE40
 EPA 00008B70 R0 FD000008 R1 00006FF8 R2 00000040
 R3 008D3CD4 R4 008D3CB0 R5 008F6920 R6 008C5FF8
 R7 FD000000 R8 008F6E40 R9 008F62B8 R10 00000000
 R11 008F6920 R12 00E2385A

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##CHAIN - Active program details*****

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##Program..... VISQSCOB
 NOTE This is the failing program
 Load point..... 00007D30
 Entry point..... 00007D30
 Program Length.... 000012D0
 Language..... Cobol 2
 Amode..... 24
 Link edit date.... 06 Nov 01
 Load library..... CONSO.GENERAL.LOAD

WKS address..... 0004E398
 TGT address..... 0004C370
 Abend was at:
 Offset 00064C in program
 Offset 00064C in CSECT VISQSCOB

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ASG-SmartQuest for MVS 7.0

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BL Cells for program VISQSCOB

BLF= 000

Address	Offset	Hex	Char
00055028	000000	E2F0C3F7 40404040 40404040 40404040	S0C7
00055038	000010	4040E3C5 E2E340C1 C2C5D5C4 40C9E2E2	TEST ABEND ISS
00055048	000020	E4C5C440 C2E840E5 C9E2D8E2 C3D6C240	UED BY VISQSCOB
00055058	000030	40404040 40404040 40404040 40404040	
Address 00055068 to 000550A7 (X'000040' bytes) same as above			
.			
.			
00055128	000100	40404040 40404040 40000000 00000000	.....
00055138	000110	00000000 00000000 00000000 00000000	.....
Address 00055148 to 00056017 (X'000ED0' bytes) same as above			
00056018	000FF0	00000000 00000000 00000000 00000000	.....

BLF= 001

Address	Offset	Hex	Char
00058FB0	000000	E2F0C3F7 40404040 C4C1E3C1 40C5E7C3	S0C7 DATA EXC
00058FC0	000010	C5D7E3C9 D6D54040 40404040 40404040	EPTION
00058FD0	000020	40404040 40404040 40404040 40404040	
Address 00058FE0 to 00058FFF (X'000020' bytes) same as above			
.			
.			
00059090	0000E0	92DA06F0 00000001 00000001 080933F4	k..0.....4
000590A0	0000F0	00000000 00006450 0005AC8D 0005AC8D&.....
000590B0	000100	00000085 00000001 00000000 00000001	.....e.....
000590C0	000110	C3C5C5D4 7CD4D6E4 00000000 00000000	CEEM@MOU.....
000590D0	000120	00000000 00000000 00000000 00000000	.....
Address 000590E0 to 000590FF (X'000EC0' bytes) same as above			
00059FA0	000FF0	00000000 00000000 00000000 00000000	.....

BLW= 000

Address	Offset	Hex	Char
0004E398	000000	40000000 00000000 005F0000 00000000	.....
0004E3A8	000010	00000000 00000000 00000000 D9C8E4C2RHUB
0004E3B8	000020	C1D9C240 E5C9E2D8 E2D5C1D7	ARB VISQSNAP

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TGT for program VISQSCOB

Address	Offset	Hex	Char
0004C370	000000	00108001 0001C428 00000000 700082CCD.....b.
0004C380	000010	80053548 B0008DFE 00007FDF 0004E098	....."....q
0004C390	000020	0001D1BC 0004E1F8 00000000 008C5FF8	..J...8.....8
0004C3A0	000030	00000000 0004E398 00055028 00007DB8	.....Tq.&....'
0004C3B0	000040	00008154 00007DB0 F2E3C7E3 0002C018	..a...'.2TGT....
0004C3C0	000050	03000000 65008220 0004C038 0001D1BC	.....b.....J.
0004C3D0	000060	0004C500 00000002 0000002C 00000000	..E.....
.			
.			
Address 0004C610 to 0004C64F (X'000040' bytes) same as above			
0004C650	0002E0	00000000 00000000 0004C000 00000088	.....h
0004C660	0002F0	C3E2E3D2 00000000 00000000 00800001	CSTK.....
0004C670	000300	00000001 00000068 00000000 00000000	.....
0004C680	000310	00000000 00000000 00000000 00000000	.....

```

Address 0004C690 to 0004DFFF (X'001970' bytes) same as above
0004E000 001C90 C8C1D5C3 0001AE68 0001AE68 00000000 HANC.....
0004E010 001CA0 0004E001 0004E428 00002000 00001BD8 .....U.....Q
0004E020 001CB0 0004E000 00000408 000003FE 00000000 .....
0004E030 001CC0 0CB0C068 00000000 0CB0C078 00000000 .....
0004E040 001CD0 00000000 01000000 00000000 01055020 .....&.
0004E050 001CE0 00844000 000068C0 C6000001 9004C584 .d.....F.....Ed
0004E060 001CF0 00900048 008CE030 92DA06F0 00000000 .....k..0....

```

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```

0004E070 001D00 0005193A 08090084 00000000 00006760 .....d.....-
0004E080 001D10 000550AC 000550AC 00000084 00000000 ..&...&...d...
0004E090 001D20 00000000 00000000 C6C3C200 01020000 .....FCB....
0004E0A0 001D30 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF .....
0004E0B0 001D40 FFFFFFFF FFFFFFFF FFFFFFFF 00000000 .....
.
.
0004E2D0 001F60 00000050 00000000 00000000 00000000 ...&.....
0004E2E0 001F70 00000000 00000000 00000000 00000000 .....
0004E2F0 001F80 00000000 00058FB0 00000000 00000000 .....
0004E300 001F90 00000000 00000000 00000000 00000000 .....
Address 0004E310 to 0004E35F (X'000050' bytes) same as above
0004E360 001FF0 00000000 00000000 00000000 00000000 .....

```

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```

##Program..... IGZEPLF
Load point..... 00007298
Entry point..... 00007298
Program Length.... 00000880
Language..... Assembler
Amode..... 31
Link edit date.... 14 Jul 01
Load library..... CEE.SCEERUN
Last call at:
  Offset 008FE8 in program
  Offset 000000 in CSECT IGZEPLF

```

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```

##Program..... VISQSCOB
Load point..... 00007D30
Entry point..... 00007D30
Program Length.... 000012D0
Language..... Assembler
Amode..... 24
Link edit date.... 06 Nov 01
Load library..... GENERAL.LOAD
Last call at:
  Offset FFF70E in program
  Offset 000000 in CSECT VISQSCOB

```

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Program storage for program VISQSCOB

Address	Offset	Hex	Char
00007D30	000000	47F0F070 23E5C9E2 D8E2C3D6 C240C3F2	.00..VISQSCOB C2
00007D40	000010	40F14BF4 4BF040F1 F161F0F6 61F0F140	1.4.0 11/06/01
00007D50	000020	F0F54BF4 F74BF1F6 00007D84 E4E87E4C	05.47.16...'dUY=<
.	.	.	.
.	.	.	.
Address 00008060	to 0000807F	(X'000020' bytes)	same as above
00008080	000350	00000000 E2E8E2C3 D6C24040 40400000	....SYSCOB ..
00008090	000360	00000000 0000E2E8 E2C3D6C2 D6404040SYSCOB0
000080A0	000370	40404040 40404040 40404040 40404040	

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ASG-SmartQuest User's Guide

##FILES - Open file I/O summary *****

```
Last record for file with DDNAME=SYSCOBI
Address  Offset  Hex                               Char
00058FB0 000000  E2F0C3F7 40404040 C4C1E3C1 40C5E7C3 SOC7   DATA EXC
00058FC0 000010  C5D7E3C9 D6D54040 40404040 40404040 EPTION
00058FD0 000020  40404040 40404040 40404040 40404040
Address 00058FE0 to 00058FEF (X'000010' bytes) same as above
00058FF0 000040  40404040 40404040 40404040 40404040
```

```
Last record for file with DDNAME=SYSCOBO
Address  Offset  Hex                               Char
00055028 000000  E2F0C3F7 40404040 40404040 40404040 SOC7
00055038 000010  4040E3C5 E2E340C1 C2C5D5C4 40C9E2E2   TEST ABEND ISS
00055048 000020  E4C5C440 C2E840E5 C9E2D8E2 C3D6C240 UED BY VISQCOB
00055058 000030  40404040 40404040 40404040 40404040
Address 00055068 to 000550A7 (X'000040' bytes) same as above
000550A8 000080  40404040
```

```
Last record for file with DDNAME=SYSOUT
Address  Offset  Hex                               Char
000550B8 000000  40404040 40404040 40404040 40404040
Address 000550C8 to 00055127 (X'000060' bytes) same as above
00055128 000070  40404040 40404040 40
```

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##HELP - IBM abend code description *****

```
*****
* WARNING. The following information on this report is *
* copyright IBM Corporation. It has been supplied on a *
* file, with ASG-SmartQuest, by permission of IBM and the *
* file must not be used for any other purpose. *
*****
```

Explanation: A program interruption occurred, but no routine had been specified to handle this type of interruption. Refer to the instruction description in Principles of Operation to find out how the instruction stops processing for the error condition.

The last digit of this completion code is a hexadecimal number that indicates the cause of the program interruption. Each X'0Cx' system completion code has a reason code, which in most cases equals the last digit. X'0C4' however, has several reason codes.

Abend
Code Explanation

- 0C1 Operation exception. The reason code is 1.
- 0C2 Privileged-operation exception. The reason code is 2.
- 0C3 Execute exception. The reason code is 3.
- 0C4 One of the following exceptions occurred:
 - 4 Protection exception. The key of the storage area that the running program tries to access is different from that of the running program. The key of the running program can be obtained from the PSW key field. The key of the storage can be obtained using the IPCS LIST subcommand. The programmer should determine whether the program is running with the correct key or whether the storage address is set up correctly.

The protection exception might have occurred when the program referenced a page that is protected with the PGSER PROTECT service, or is defined as shared by the IARVSRV service with a view of read-only.

10 Segment-translation exception. This error is caused by one of the following:

A program that was running disabled attempted to reference storage while the page table for that storage was paged out. To correct the error, page-fix the storage before a program running disabled attempts to reference it.

A program attempted to reference storage that had not been obtained. To correct the error, allocate the storage before attempting to reference it.

A program running in a subspace attempted to

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reference storage that was not accessible to the

subspace at the time of error. To correct the error, ensure that the program running in a subspace references only the storage assigned to that subspace, or storage that can be referenced by all subspaces.

11 Page-translation exception. This error is caused by one of the following:

A program that was running disabled attempted to reference storage while that storage was paged out. To correct the error, page-fix the storage before a program running disabled attempts to reference it.

A program attempted to reference storage that had not been obtained. To correct the error, allocate the storage before attempting to reference it.

A program running in a subspace attempted to reference storage that was not accessible to the subspace at the time of error. To correct the error, ensure that the program running in a subspace references only the storage assigned to that subspace, or storage that can be referenced by all subspaces.

: SMS abend. The reason code is X'12C'.

0C5 Addressing exception. The reason code is 5.

0C6 Specification exception. The reason code is 6.

0C7 Data exception. The reason code is 7.

0C8 Fixed-point-overflow exception. The reason code is 8.

0C9 Fixed-point-divide exception. The reason code is 9.

0CA Decimal-overflow exception. The reason code is A.

0CB Decimal-divide exception. The reason code is B.

0CC Exponent-overflow exception. The reason code is C.

0CD Exponent-underflow exception. The reason code is D.

0CE Significance exception. The reason code is E.

0CF Floating-point-divide exception. The reason code is F.

Source: Supervisor control

System Action: The system abnormally ends the task, unless a recovery routine was provided to handle the interruption. The hardware action is given in Principles of Operation.

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System Programmer Response: Determine whether the problem program or control program was in error.

If the problem program contained an error, correct it, and run the job step again.

End of ASG-SmartQuest dump summary *****

To print one or more dumps

- 1 On the List pull-down screen, type P to the left of the dumps you want to print, as shown in [Figure 43](#).

Figure 43 • Selected Dump List Screen (Print Option)

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command *----- Selected Dump List -----*
VIEW 1-
Date      Time      Job/Appl Tran Abnd Term Program Cnt Notes
Tran      - 2002-10-16 04:23:40 VIACDA2 IQLK APCT L007 TESTPROG
Task      - 2002-10-16 04:14:17 VIACDA2 DLPE DHAC L007 OAK2DLPE
Term      - 2002-10-16 04:13:55 VIACDA2 DLCC DL42 L007 OAK2DLCC
Aben      - 2002-10-16 04:11:43 VIACDA2 DLCE DHAC L007 OAK2DLCE
Prog      P 2002-10-16 04:08:26 VIACDA2 IQL2 ASRA L007 HSPL1E
          - 2002-10-16 03:54:00 VIACDA2 IQL2 ASRA L007 HSPL1L
Aben      - 2002-10-16 02:50:29 VIACDA2 DB21 AEY9 L007 DB2PROG1
Aben      - 2002-10-16 02:49:49 VIACDA2 IQLK ASRA L007 HSCOB3B
          - 2002-10-16 02:43:44 VIACDA2 IQLK AEIS L007 HSCOB2P
          - 2002-10-16 02:43:39 VIACDA2 IQLK OAKS L007 HSCOB2P
Fail      - 2002-10-16 02:32:34 VIACDA2 IQLK ASRA L007 HSCOB2G
          - 2002-10-16 02:32:22 VIACDA2 IQLK ASRA L007 HSCOB2F2
          - 2002-10-16 02:31:24 VIACDA2 IQLK ASRA L007 HSCOB2E2
Last      - 2002-10-16 02:29:45 VIACDA2 IQLK ASRA L007 HSCOBVA
Reso      - 2002-10-14 05:02:43 VIATESTU SOC7 MUCOBVA
Eibr *-- PF3=End 7/8=Scroll -----*

--- CLEAR=Exit 1=Help 3=End -----
Key "S"elect, "D"elete, "H"old, "R"elease or "P"rint.
    
```

- 2 Press Enter to display the User Print Submission Job Card Details screen shown in [Figure 44](#).

Figure 44 • User Print Submission Job Card Details Screen

```

*----- User Print Submission Job Card Details -----*
//jobname JOB ..rest of jobcard...
//*
//*
//*
*----- PF3=End -----*
Task - 2002-10-16 04:14:17 VIACDA2 DLPE DHAC L007 OAK2DLPE
Term - 2002-10-16 04:13:55 VIACDA2 DLCC DL42 L007 OAK2DLCC
Aben - 2002-10- 6 04:11:43 VIACDA2 DLCE DHAC L007 OAK2DLCE
Prog P 2002-10-16 04:08:26 VIACDA2 IQL2 ASRA L007 HSPL1B
- 2002-10-16 03:54:00 VIACDA2 IQL2 ASRA L007 HSPL1L
Aben - 2002-10- 6 02:50:29 VIACDA2 DB21 AEP9 L007 DB2PROG1
Aben - 2002-10-16 02:49:49 VIACDA2 IQLK ASRA L007 HSCOB3B
- 2002-10-16 02:43:44 VIACDA2 IQLK AEIS L007 HSCOB2P
- 2002-10-16 02:43:39 VIACDA2 IQLK OAKS L007 HSCOB2P
Fail - 2002-10-16 02:32:34 VIACDA2 IQLK ASRA L007 HSCOB2G
- 200 -10-16 02:32:22 VIACDA2 IQLK ASRA L007 HSCOB2F2
- 200 -10-16 02:31:24 VIACDA2 IQLK ASRA L007 HSCOB2E2
Last - 2002-10-16 02:29:45 VIACDA2 IQLK ASRA L007 HSCOBVA
Reso - 2002-10-14 05:02:43 VIATESTU S0C7 MUCOBVA
Eibr *-- PF3=End 7/8=Scroll -----*

--- CLEAR=Exit 1=Help 3=End -----
Change job card, <enter> to submit, <end> to cancel

```

- 3 Enter your job card details. You can have a maximum of four lines of job card JCL, but unused lines should be specified with `//*` in the first 3 positions.

The job card details are saved in your user profile record in the SmartQuest Profile file. This job card information displays on the User Print Submission Job Card Details screen the next time you print.

Note: _____

Only the user that invoked the CICS region has the rights to submit a print dump job for the dump. The job card information must pertain to that user.

- 4 Press Enter to build and submit the print job JCL. If the job has been successfully built and submitted, a screen similar to [Figure 45 on page 60](#) displays.

Only one job is submitted, even if you requested the printing of multiple dumps. Each dump print is added as a step within the same job.

Figure 45 • Selected Dump List Screen Displaying Print Job Details

```

----- User Print Submission Job Card Details -----*
//j bname 08 . rest of obcard. .
//*
//* Selected Dump List -----*
//*
//* Date Time Job/Appl Tran Abnd Term Program Cnt Notes
//*
Task - 2002-10-16 04:23:40 VIACDA2 IQLK APTC L007 TESTPROG
Term - 2002-10-16 04:14:17 VIACDA2 DLPE DHAC L007 OAK2DLPE
Aben - 2002-10-16 04:13:55 VIACDA2 DLCC DL42 L007 OAK2DLCC
Prog - 2002-10-16 04:11:43 VIACDA2 DLCE DHAC L007 OAK2DLCE
Aben - 2002-10-16 04:08:26 VIACDA2 IQL2 ASRA L007 HSPL1B Printed
Term - 2002-10-16 03:54:00 VIACDA2 IQL2 ASRA L007 HSPL1L
Aben - 2002-10-16 02:50:29 VIACDA2 DB21 AEP9 L007 DB2PROG1
Term - 2002-10-16 02:49:49 VIACDA2 IQLK ASRA L007 HSCOB3B
Aben - 2002-10-16 02:43:44 VIACDA2 IQLK AEIS L007 HSCOB2P
Term - 2002-10-16 02:43:39 VIACDA2 IQLK OAK3 L007 HSCOB2P
Fail - 2002-10-16 02:32:34 VIACDA2 IQLK ASRA L007 HSCOB2G
Term - 2002-10-16 02:32:22 VIACDA2 IQLK ASRA L007 HSCOB2F2
Aben - 2002-10-16 02:31:24 VIACDA2 IQLK ASRA L007 HSCOB2E2
Term - 2002-10-16 02:29:45 VIACDA2 IQLK ASRA L007 HSCOBVA
Reso - 2002-10-14 05:02:43 VIAESTU S0C7 MUCOBVA
Eibr *-- PF3=End 7/8=Scroll -----*

--- CLEAR=Exit 1=Help 3=End ---
Print job jobname (JOB01984) submitted
    
```

Note: _____
 The dumps printed are marked Printed in the Notes column. The message at the foot of the screen informs you of the name and number of the print job.

The Labels Action Bar Option

Every SmartQuest screen, except the pull-down screens and the SmartQuest for CICS Last 3270 screen, can be assigned a label and redisplayed using that label. The Labels action bar option displays a list of your assigned labels.

Note: _____
 Assigned labels for a dump are deleted when you select a new dump.

To access the Labels screen, follow this step:

- ▶ Select the Labels action bar option or type LABELS. The Labels pull-down screen, shown in [Figure 46](#), displays.

Figure 46 • Labels Pull-down Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Active program c @bendsummary
Abnd/Lnk WKS/DSA Program Le cond
                                Dfseipb0
                                Psw2
                                Corestg
> 000EBE74 00000000 DFSEIPB0
000643A0 00000000 IGZCFCC
0C9D8168 0CBE90B8 MUDLIB
000B3280 00000000 MUDLIB
0005B96E 00000000 DFSFLST0
0005E94E 00000000 CEEBINIT
00FCCE40 00000000 DFSBC000
0005B622 00000000 DFSPCC30
00007F96 00000000 DFSRRC00

*-- PF3=End 7/8=$croll -----*

--- CLEAR=Exit 1=Help 3=End 7/8=$croll -----
Position cursor at required label and press <enter>

```

Note: _____

If you have not assigned any label, a message to this effect displays.

To assign a label

- 1 Access the screen to which you want to assign the label.
- 2 Type SET *label* or S *label*, where *label* is a name from 1 to 30 characters in length. The first character must be an alphabetic character (A through Z), but the remaining can be any keyboard characters, including imbedded blanks.
- 3 Press Enter to save the label.

These are some examples of valid and invalid labels:

Label	Status
MYAREA	Valid
MYAREA 2	Valid
AN AREA OF STORAGE	Valid
A(STOR1)	Valid
ACB#1	Valid
&MYLAB	Not valid (does not begin with an alphabetic character)

To redisplay a labeled screen

- 1 Select Labels on the action bar or type `LOCATE label` (or `L label`).
- 2 Tab to the desired label and press Enter. This redisplay the screen associated with the selected label. Use the Up and Down keys to scroll through the listed labels.

Note: _____

You can reassign any label to a new screen at any time by reissuing the SET command.

The Maps Action Bar Option

The Maps action bar option displays the Map Selection Menu pull-down screen shown in [Figure 47](#). This screen lists all the DSECTs and other storage area layouts that are available for use in this dump. This allows you to select a layout or map to overlay on any storage area. As a result, the current area displays overlaid with the requested field names. The Maps pull-down list can also be displayed using the MAPSEL command. See ["The Mapped Display" on page 85](#) for more information on mapped storage displays and the use of this action bar option.

Figure 47 • Map Selection Menu Pull-down Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==> *----- Map Selection Menu -----
VIEW 1----- Core display of the TGT | Db2progl | -----
Address Offset Hexadecimal | Dfhcommarea |
0DD07878 000140 00000000 00000000 0 | Dfheiblk |
0DD07888 000150 00000000 00000000 0 | Wks-db2progl |
0DD07898 000160 00000000 00000000 0 | Csaopfl |
0DD078A8 000170 00000000 00000000 0 | Dbpcb |
0DD078B8 000180 00000000 00000000 0 | Dbpcbx |
| Dfhabnd |
| Dfhcsads |
| Dfheiblk |
| Dfheicds |
| Dfheids |
| Dfhldcbs |
| Dfhssads |
| Dfhscads |
| Dfhscady |
| Dfhctrs |
*-- PF3=End 7/8=Scroll -----*

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll 4=Roll -----
Position cursor at required map and press <enter>

```

The Toggles Action Bar Option

The Toggles option provides a set of simple switches. The switches specific to the Source or Mapped displays are discussed in ["The Source Display" on page 73](#) and ["The Mapped Display" on page 85](#).

To access the toggle options, follow this step:

- ▶ Select the Toggles action bar option or type TOGGLES. The Toggles pull-down screen, shown in [Figure 48](#), displays.

Figure 48 • Toggles Pull-down Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Core display of the TGT for pr
Address Offset Hexadecimal
0DD07878 000140 00000000 00000000 00000000
0DD07888 000150 00000000 00000000 00000000
0DD07898 000160 00000000 00000000 00000000
0DD078A8 000170 00000000 00000000 00000000
0DD078B8 000180 00000000 00000000 00000000
*-----Toggles-----*
Disable action bar tabs
Set zoom mode to 24 bit
Disable assoc data display
Disable field data display
Switch all data settings
Show data in hex
"CORE" display when zooming
*-- PF3=End -----*

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll 4=Roll -----
Position cursor at item required and press <enter>

```

These are the toggle options:

Option	Description
Disable action bar tabs	Switches the action bar tabs on and off. Select this option or use the ABAR command to change the setting.
Set ZOOM mode to 24 bit	Switches the ZOOM mode to 24 bit. By default, SmartQuest treats all addresses as 31 bit when using the ZOOM feature (point-and-shoot). To switch the ZOOM mode to 24 bit, or back to 31 bit, use the MODE command or select the appropriate entry from the Toggles pull-down menu.
Disable assoc data display	Disables the Associated Data window. By default, if a failing statement has associated data, an Associated Data window displays at the bottom of the screen when the abending program's source is displayed. Associated data describes the field names that are referenced by the failing statement and shows their contents at the time of error. Select this toggle, or use the ADATA command to turn this feature on and off.
Disable field data display	Reverses the current setting if the associated data and the field data toggle. It turns both off, both on, or reverses the settings if one is currently off and the other on. You can also use the DATA command to switch settings.

Option	Description
Change all data settings	Switches the associated data and the field data on and off. Note: This toggle reverses the current setting of the associated data toggle switch and the field data toggle switch. It turns both off, both on, or reverses the settings if one is currently off and the other on. You can also use the DATA command to switch settings.
Show all data in hex	Displays field data values and associated data values in hex. By default, these values are shown in character or numeric format when possible. When the data type restricts this or when the data contains non-character or non-numeric values it is shown in hexadecimal. This toggle forces all data values to be shown in hex. You can also use the HEX command.
CORE display when zooming	<p>Forces a Core display, with hexadecimal on the left and character on the right. By default, SmartQuest displays information appropriate to the storage you have selected when you ZOOM on an address. For example, if the address is in program storage, SmartQuest displays your source (if available) or a Disassembly display (if no source is available). For control blocks and acquired storage, SmartQuest displays a Mapped display (if the necessary source file information exists).</p> <p>Use the CORE command to switch any current storage or Source display to a CORE type display. Use the ZFORMAT toggle command or select this option on the Toggle pull-down menu to force every ZOOM to show a Core display.</p>

The Help Action Bar Option

The Help Menu pull-down screen provides several types of help. You can choose to view a specific help topic, general help information, PF key settings, or the command summary.

To access the online help

- 1 Use the Help action bar option or type HELPMENU. The Help Menu pull-down screen, shown in [Figure 49](#), displays.

Figure 49 • Help Menu Pull-down Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Core display of the I          *----- Help Menu -----*
Address Offset Hexadecimal                 Using the Action Bar.
0DD07878 000140 00000000 00000000         Using the File pull-down screen.
0DD07888 000150 00000000 00000000         Using the Filter pull-down screen.
0DD07898 000160 00000000 00000000         Using the List pull-down screen.
0DD078A8 000170 00000000 00000000         Using the Dump Details Menu.
0DD078B8 000180 00000000 00000000         Using the Labels pull-down screen.
                                           Using the Help pull-down menu.
                                           Using the Maps pull-down screen.
                                           Using the Toggles pull-down screen.
                                           Using the Views.
                                           Using the PF Keys.
                                           Using the ZOOM Feature.
                                           Commands Quick Reference.
                                           Controlling the Views.
                                           Navigation commands.
                                           Controlling Display Format.
                                           Displaying pull-down screens.
                                           *-- PF3=End 7/8=Scroll -----*
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll 4=Roll -----
Position cursor at help required and press <enter>

```

- 2 Scroll the menu using the Up and Down PF keys and select the desired topic by positioning the cursor and pressing Enter. [Figure 50](#) is an example of the General Product Information help.

Figure 50 • Help - General Product Information Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1-----*** HELP ***- General Product Information.-----

ASG-SmartQuest is a powerful yet easy-to-use tool for analyzing Batch ab
IMS online abends, and CICS transaction abends. The pull-down menus, the
cursor selectable fields, and the innovative facilities for rapid naviga
through a dump make this product almost command free.

ASG-SmartQuest has been specifically designed for ease of use. You will
be able to make full use of the many facilities that enable you to resol
all of your Batch, IMS online, and CICS transaction abends. The online h
facility, which you can access by selecting 'Help' on the action bar, or
ASG-SmartQuest User's Guide provide help in using the product.

These are the main features of the product:

1. Source level support for Assembler, COBOL, and PL/I. ASG-SmartQuest 1
you see the source code of your abending application program with the
failing statement clearly highlighted and with the contents of all your

--- CLEAR=Exit 3=End 7/8=Scroll -----

```

If PF n =Help displays at the foot of a screen, you can press the HELP key or type HELP to display the online help text for the screen that you are viewing.

3

Analyzing Dumps

This chapter describes the types of displays available to analyze SmartQuest dumps and contains these sections:

Section	Page
The Source Display	73
The Disassembly Display	82
The Mapped Display	85
The Core Display	89

The Source Display

The appropriate source support information for failing programs is held on the SmartQuest source file or in ASG-SmartTest analyzed programs in the Application Knowledge Repository (AKR). This information must accurately reflect the load module that you are currently running. That is, the source information on file must have been created by processing the compiled output of the same source that was used to create the current load module. Failure to ensure that this is the case can lead to misleading information being displayed.

Note: _____
AKR source support must be enabled by your systems administrator.

Post-compile Processor

To produce the necessary source support information, a special program known as the post-compile processor is provided. Modify your compile JCL decks if you have not already done so. See ["Utilities" on page 91](#) for more information about using the post-compile processor.

Note: _____

See the *ASG-SmartQuest Installation Guide* for more information about modifying your compile JCL decks.

Source-level support is provided for these languages:

- COBOL for OS/390 and VM
- COBOL 2 Release 3
- COBOL for MVS and VM (also referred to as COBOL/370)
- PL/I Version 2.3.0
- PL/I for MVS and VM (also referred to as PL/I 370)
- Assembler H
- High-level Assembler

When you use the ZOOM feature on an address that is within program storage, SmartQuest first determines which program and CSECT this address is in. It then examines the source file to see if the necessary information is present for this program/CSECT combination. If not, it examines the alternate source file if you have one. When source support information is available, the Source display is shown in preference to any other display type. The format of the Source display is similar regardless of the language you are using.

[Figure 51](#) is an example of a COBOL 2 Source display. The header line shows the name of the program (the load module name), followed by the CSECT name in brackets. For COBOL, this is usually the name you enter on the PROGRAM-ID card and may often be the same as the load module name.

Figure 51 • Sample of the Source Display

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Source list of the IGT for progrMVC0B2A 2A (MVC0B2A ) -----
000017 PROCEDURE DIVISION.
000018
000019 TEST-PARA.
000020 CALL NEXTPGM.
000021 TEST-PARA-EXIT.
000022 EXIT.
000023
000024 THE-END.
000025 STOP RUN.
000026 IDENTIFICATION DIVISION.
000027 PROGRAM-ID. MVC0B2AX.
000028 *
000029 ENVIRONMENT DIVISION.
000030 *
000031 DATA DIVISION.
000032 *
000033 WORKING-STORAGE SECTION.
000034 01 US-FIELDS.                               Adr= 0C900B70 Data=
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

Source Display Features

These are the main features of the Source display:

- The failing or CALLING statement is clearly highlighted.
- The fields referenced by the failing or CALLING statement are shown in the Associated Data window at the foot of the screen. Each field is shown with its address and contents at the time of abend.
- Each line of source code that defines a field displays showing the address and contents of the first field defined on the line. This is known as the field data value feature.
- The Up and Down PF keys are enabled to allow you to examine the contents of other fields that are not shown in the associated data window.
- Where a field is large and its complete contents cannot be shown on this screen, you can position the cursor on its address and press Enter. This displays a normal dump format display (Core display) starting at this field's address. You are able to view the entire field contents. Press PF3 to return to the Source display.

Note: _____

_____ You can ZOOM to any address that might be contained in a field. _____

Source Display Commands

These Source display commands are common to all languages:

Command	Description
ASSEM	Switches from a Source display to a Disassembly display.
CORE	Switches from a Source display to a Core display (standard dump format display - hexadecimal on the left, character on the right).
ADATA	Turns on/off the associated data window. You can also use the Toggles pull-down menu.
FDATA	Turns on/off the field data values. You can also use the Toggles pull-down menu.
DATA	Changes both the current ADATA and FDATA switch settings. So it either turns both off, turns both on, or reverses the settings if one is currently off and the other on. You can also use the Toggles pull-down menu.
HEX	Forces all data values to be shown in hexadecimal. Use it again to return to default display state (i.e., turn HEX off). You can also use the Toggles pull-down menu.
L <i>nnnnnn</i>	LOCATEs source line number <i>nnnnnn</i> and displays this as the first line of the screen (where <i>nnnnnn</i> is from 1 to the highest line number in the current program).
LEFT/RIGHT	Shifts the Source display left or right. These commands have no effect on a 132-column display, as the whole source line displays in this case. On 80-column screens, the Source display is automatically displayed right shifted, so that the first column shown is the one you would see in a TSO/ISPF EDIT session. To view the compiler output added on the left, use the LEFT command. To return to the normal view use the RIGHT command.
*	Returns to the failing/linking statement after scrolling your Source display.

Command	Description
FIND	Finds hexadecimal or character strings within your source text. This does not include field addresses and contents nor any of the information shown in the associated data window. The FIND command syntax follows these normal conventions: <pre> FIND string FIRST start-col end-col F 'quoted string' LAST X'hex string' PREV NEXT </pre>
	<p>Note:</p> <p>Because the source is automatically right shifted, the first column shown is not column 1. The column numbers are as they would be if you were doing a find using SDSF, or other online SYSOUT dataset browse product, less 1, since SmartQuest does not have the print control characters at the start of each line.</p>
RFIND	Repeats the last FIND command.

COBOL Source Support Considerations

All COBOL field types are included in the associated data window, when necessary, and have field data values displayed as shown in [Figure 52](#). This can include implicitly defined indexes (index fields defined using the INDEX BY clause).

Figure 52 • Sample COBOL 2 Source Display

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Source list of program MUC0B2A (MUC0B2A ) -----
000034 01 WS-FIELDS.                      ADR= 0C900B70 Data=
000035 03 WS-CNTR-PACKED PIC ADR= 0C900B70 Hex = 40
000036 03 FILLER REDEFINES WS-CNTR- ADR= 0C900B70 Data=
000037 05 WS-CNTR                          ADR= 0C900B70 Data=
000038 *
000039 PROCEDURE DIVISION.
000040
000041 TEST-PARA.
000042
000043 MOVE SPACES TO WS-CNTR.
-Abnd- ADD 1 TO WS-CNTR-PACKED.
000045
000046 TEST-PARA-EXIT.
000047 EXIT.
000048
000049 THE-END.
----- Associated data for FAILING statement -----
Bad--> WS-CNTR-PACKED ADR= 0C900B70 Hex = 40
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

Support for these COBOL features is also provided:

- Nested routines
- Statically linked routines
- Dynamically CALLED routines
- Multi-CSECT programs
- Mixed case programs

Coding Restrictions

The only restriction in a COBOL program is that it cannot contain any COPY SUPPRESS statements. All COBOL statements, including fully expanded copybooks, must be included in the compiler output. Failure to comply with this produces a severe error return code from the post-compile processor and unpredictable results when attempting to display source.

PL/I Source Support Considerations

PL/I has a liberal language syntax. It may even compensate for any missing semi-colons (;) or close parentheses ()). PL/I can contain non-declared fields, declared fields without a declared data type, structures defined using the LIKE keyword, and other features that make the provision of source-level support, at times, complex. SmartQuest handles most of these without problems.

Coding Restrictions

- Since the Source display shows field data values for the first field declared on a single line, you should avoid having multiple variables declared on the same line. Multiple variable lines do not stop the product from functioning correctly, but should be avoided to maximize the benefits of the data value feature. The contents of all variables can be viewed by alternative means if necessary.
- Omitting trailing close parentheses ()) or semi-colons (;) may be acceptable to the compiler, but in some rare instances this may produce unpredictable errors in the Source display feature. Examine your compiler output listing for such errors and correct them to prevent Source display problems.
- A few PL/I field types (BUILTIN, EXTERNAL ENTRY, AREA, and some other seldom-used types) are not supported. This does not mean that source support cannot be provided for programs containing such variables, but these variables are not shown with data values and do not appear in the associated data window.
- Controlled variables are not supported.
- The use of %NOPRINT is not allowed. If you do suppress any compiler output using the %NOPRINT compiler command, then the post-compile processor gives a severe error return code and the source support feature gives unpredictable results.

Supported Coding Procedures

- Support is included for multiple internal procedures, procedures statically linked and CALLED and dynamically FETCHED and CALLED, and the use of BEGIN blocks.
- These field types are fully supported:
 - Structures
 - Character
 - Pointer
 - Fixed Decimal
 - Fixed Binary
 - Float Decimal
 - Float Binary
 - Picture
 - Graphic
 - Bit
 - Entry
- Automatic fields, static fields, external fields, defined fields, and parameters are supported.
- Support is also provided for both based fields and based-on-address fields. The based field level cannot exceed 5. Fields that are based on other based fields are supported, but only to the fifth base level.

A sample PL/I Source display is shown in [Figure 53](#). As with COBOL, the header line shows the name of the program (the load module name) followed by the CSECT name in brackets. The CSECT name for PL/I is always derived from the main procedure name.

Figure 53 • Sample PL/I Source Display

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Source list of program MUPL3F (*MUPL3F1) -----
000023 UCHARFLD = MY_ARRAY(1);
000024 (SIZE)DCL FRED CHAR(5);           ADr= 0003445D Hex = 0000000000
000025 BRACKET_TEST = ' ABC(XYZ) ';
000026 BRACKET_TEST = ' ABC(XYZ) ';
000027 FLD1:DCL BILL CHAR(5);           ADr= 00034458 Hex = 0000000000
000028 BEGIN;                           ADr= 000344B8 Hex = 8425
000029 DCL 1 TEST_STRUCTURE2,           ADr= 00034588 Data= AAAABBBB
000030     25 TEST_STR_FIELD1,           ADr= 00034588 Data= AAAABBBB
000031     35 TEST_STR_SUBFLD1           ADr= 00034588 Data= AAAA
000032     35 TEST_STR_SUBFLD2           ADr= 0003458C Data= BBBB
000033 TEST_STRUCTURE2.TEST_STR_FIELD1 =
000034 TEST_STRUCTURE2.TEST_STR_FIELD1 ;
000035 DCL X DEC FIXED (15) INIT (10) ADr= 00034580 Data= +10
000036 DCL Y DEC FIXED (15) INIT (0)  ADr= 00034578 Data= +0
000037 DCL Z DEC FIXED (15) INIT (0) ADr= 00034570 Data= +0
-Abnd- SIGNAL ERROR;
000039 END;
000040 END MUPL3F;
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

Assembler Source Support Considerations

All Assembler fields are fully supported. Those defined in DSECTs and CSECTs are shown with field data values. The associated data window for Assembler does not show the field names as it does for COBOL and PL/I. It only shows operand 1 and operand 2, where appropriate, with their address and contents as shown in [Figure 54](#).

Figure 54 • Sample Assembler Source Display

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Source list of program T64BIT (T64BIT ) -----
000021 BALR 12,0
000022 USING *,12
000023 LR 15,13
000024 LA 13,SAVE
000025 ST 13,8(15)
000026 ST 15,4(13)
000027 ABEND 4001,DUMP                      RR TYPE 3 (GENERATED SVC 13)
000028 + DS 0H                               ADr= 0C900F14 Data= +16656
000029 + LA 1,4001                           LOAD PARAMETER REG 1
000030 + LA 0,128(0,0)                       DUMP/STEP/DUMPOPTS/REASON @G860P1F
000031 + SLL 0,24(0)                          SHIFT TO HIGH ORDER
000032 + OR 1,0                               OR IN WITH COMPCODE
-Abnd- + SVC 13                            LINK TO ABEND ROUTINE
000034 BCTR R1,0                              RR TYPE 1
000035 CH R1,'H'0'                            RX TYPE
000036 BE SKIPTS                             EXTENDED MNEMONIC BRANCH TYPE
000037 TS FLAG1                               S TYPE
000038 SKIPTS DS 0H                          ADr= 0C900F32 Data= -26606
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

This simplification for Assembler reduces the post-compile processing time. The operands are always in sequence in the statement.

Coding Restrictions

Avoid the use of PRINT OFF and PRINT NOGEN in Assembler, although when used within DSECTs their impact is limited. When they are detected, the post-compile processor gives a return code 4. A PRINT OFF or a PRINT NOGEN that hides executable instructions is more serious and should be removed.

Base Registers

When showing data values for fields in DSECTs, the base register used to calculate the address and contents is taken from the very first USING statement that the post-compile processor encounters for the DSECT. In your program, you can DROP a base register and issue a new USING with a different base register. In addition, your program may make use of the high-level Assembler-dependent USING and labeled USING features. SmartQuest, therefore, allows you to vary the base register used in the display. For example, [Figure 55](#) shows a CICS DSECT named DFHEISTG.

Figure 55 • Source Display of DSECTs

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Source list of program TESTPROG(TESTPROG) -----
000235 ***** EXEC INTERFACE DYNAMIC STORAGE *****
000236 **
000237 ***** EXEC INTERFACE STORAGE *****
000238 +DFHEISTG DSECT EXEC INTERFACE STORAGE @BBAC81A
000239 + USING *,DFHEIPLR ESTABLISH ADDRESSABILITY @BBAC81A
000240 +DFHEISA DS 18F R13 Adr= 0EE000FA Data= -473380382
000241 +DFHEILWS DS F R13 Adr= 0EE00142 Data= +1077952576
000242 +DFHEINAB DS F R13 Adr= 0EE00146 Data= +1077952576
000243 +DFHEIRS0 DS F R13 Adr= 0EE0014A Data= +1490079748
000244 +DFHEIR13 DS F R13 Adr= 0EE0014E Data= +454121712
000245 +DFHEIRS1 DS F R13 Adr= 0EE00152 Data= -1053293073
000246 +DFHEIRB DS F R13 Adr= 0EE00156 Data= -1729310708
000247 +DFHEICAP DS F R13 Adr= 0EE0015A Data= +134086656
000248 +DFHEIU00 DS H R13 Adr= 0EE0015E Data= +0
000249 +DFHEIRS2 DS H R13 Adr= 0EE00160 Data= +3808
000250 +DFHEIPL DS 13F R13 Adr= 0EE00162 Data= +23592960
000251 + DS 51F R13 Adr= 0EE00196 Data= ? *Not in dump*
000252 ** AND IN XA2 ON, FOR EXEC CICS ALSO
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

You can see that DFHEISTG has a default base register of R13 and so the addresses and field contents for this DSECT have been calculated using the content of R13 as a base. If this DSECT were a labeled DSECT and also addressed by R3, you could view the DSECT field contents using R3 as the base by typing this command:

```
USING DFHEISTG,R3
```

This syntax is how you would code a simple basic USING statement in your Assembler program. The message New using accepted is shown at the bottom left of the screen as confirmation of the change.

The Disassembly Display

When source support is not available for a particular program, a Disassembly display is shown for all program storage, as shown in [Figure 56](#).

Figure 56 • Disassembly Display

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Disassembly of program TESTPROG(TESTPROG) -----
Address Offset Instructions Disassembly Chars
0EE0CC5E 00014E 4110 D068 LA 1,104(0,13) ....
0EE0CC62 000152 41E0 C178 LA 14,376(0,12) ..A.
0EE0CC66 000156 41F0 C187 LA 15,391(0,12) .0Ag
0EE0CC6A 00015A 4100 D064 LA 0,100(0,13) ....
0EE0CC6E 00015E 90E0 1000 STM 14,0,0(1) ....
0EE0CC72 000162 9600 1008 OI 8(1),128 0...
0EE0CC76 000166 58F0 C174 L 15,372(0,12) .0A.
0EE0CC7A -Abnd- 05EF BALR 14,15 ..
0EE0CC7C 00016C 4110 D068 LA 1,104(0,13) ....
0EE0CC80 000170 41E0 C18E LA 14,398(0,12) ..A.
0EE0CC84 000174 50E0 1000 ST 14,0(0,1) &...
0EE0CC88 000178 9600 1000 OI 0(1),128 0...
0EE0CC8C 00017C 58F0 C174 L 15,372(0,12) .0A.
0EE0CC90 000180 05EF BALR 14,15 ..
0EE0CC92 000182 0000 DC AL2(00000) ..
0EE0CC94 000184 0000 DC AL2(00000) ..
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

Disassembly Display Features

These are the main features of the Disassembly display:

- The failing or linking instruction is clearly highlighted.
- The machine instruction portion may contain addresses, and you can use any byte of this portion of the display as the start of a 4-byte address for ZOOMING. To zoom to an address, position the cursor on the address and press Enter.
- The position of each CSECT is shown by the CSECT name appearing on the right-hand side of the screen. This is true even if there is no source support information for this program.
- Ability to scroll using accurate full page scrolling or by partial page using cursor position.

- Ability to modify the initial starting offset using these commands:

```
+xxxxxxx    Adds the hexadecimal offset xxxxxxx to the current start offset.
-xxxxxxx    Subtracts the hexadecimal offset xxxxxxx from the current offset.
=xxxxxxx    Displays from the hexadecimal offset xxxxxxx.
```

In these commands, xxxxxxx is a hexadecimal value between 0 and FFFFFFFF.

- Ability to switch to a Source display (if source support is available) by typing SOURCE, or to a standard dump view by typing CORE.

Diagnosing Source and Object Misalignment

The Disassembly display is also useful for diagnosing problems caused by a source and object misalignment. When you choose a Disassembly display for a program that has source information on the SmartQuest source file, additional information displays in the right column of the screen. For COBOL programs, this is the verb for each statement, as shown in [Figure 57](#).

Figure 57 • Disassembly Display With COBOL Verbs

```
ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
UIEV 1----- Disassembly of program MUCOB2A (MUCOB2A ) -----
Address  Offset  Instructions  Disassembly  Chars
0C90096A 00038A D203 D0EC A008 MVC 236(4,13),8(10) K..... MUCOB2AX
0C900970 000390 9180 D154 TH 340(13),128 j.J.
0C900974 000394 5880 C004 L 11,4(0,12) ....
0C900978 000398 4780 B12E BZ 302(0,11) ....
0C90097C 00039C 5820 D05C L 2,92(0,13) ...*
0C900980 0003A0 58F0 21CC L 15,460(0,2) .0..
0C900984 0003A4 4110 A187 LA 1,391(0,10) ..9
0C900988 0003A8 05EF BALR 14,15 ..
0C90098A 0003AA 9680 D154 OI 340(13),128 o.J.
0C90098E 0003AE 9640 D154 OI 340(13),64 o J.
0C900992 0003B2 9240 9028 MVI 40(9),64 k .. MOVE
0C900996 -Abnd- FA00 9028 A04A AP 40(1,9),74(1,10) .....$ ADD
0C90099C 0003BC F800 9028 9028 ZAP 40(1,9),40(1,9) $.
0C9009A2 0003C2 47F0 B14A B 330(0,11) .0.$ GOBACK
0C9009A6 0003C6 947F D154 NI 340(13),127 M"J.
0C9009AA 0003CA 47F0 B170 B 368(0,11) .0..
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
```

For PL/I programs, the statement numbers of each PL/I statement are displayed as shown in [Figure 58](#).

Figure 58 • Disassembly Display With PL/I Statement Numbers

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Disassembly of program MUPL3F (*MUPL3F1) -----
Address Offset Instructions Disassembly Chars
0C900EAE 00013E 0705 NOPR 5 ..
0C900EB0 000140 4870 3020 LH 7,32(0,3) .... STM00010
0C900EB4 000144 4070 D0C0 STH 7,192(0,13) ...
0C900EB8 000148 D204 D0C2 D0F0 MVC 194(5,13),240(13) K..B.0
0C900EBE 00014E D209 D109 3051 MVC 265(10,13),81(3) K..J... STM00012
0C900EC4 000154 D209 D109 305B MVC 265(10,13),91(3) K..J..$ STM00013
0C900ECA 00015A 181D LR 1,13 .. STM00015
0C900ECC 00015C 185D LR 5,13 .)
0C900ECE 00015E 58F0 3010 L 15,16(0,3) .0..
0C900ED2 000162 05EF BALR 14,15 ..
0C900ED4 000164 180D LR 0,13 .. STM00023
0C900ED6 000166 58D0 D004 L 13,4(0,13) ....
0C900EDA 00016A 58E0 D00C L 14,12(0,13) ....
0C900EDE 00016E 982C D01C LM 2,12,28(13) q...
0C900EE2 000172 051E BALR 1,14 ..
0C900EE4 000174 90EC D00C STM 14,12,12(13) .... STM00015
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

For Assembler programs, the field labels are displayed as shown in [Figure 59](#).

Figure 59 • Disassembly Display with Assembler Field Labels

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Disassembly of program T64BIT (T64BIT ) -----
Address Offset Instructions Disassembly Chars
0C900F00 000000 90EC D00C STM 14,12,12(13) .... T64BIT
0C900F04 000004 05C0 BALR 12,0 ..
0C900F06 000006 18FD LR 15,13 ..
0C900F08 000008 41D0 C096 LA 13,150(0,12) ...0
0C900F0C 00000C 50DF 0008 ST 13,8(15,0) &...
0C900F10 000010 50FD 0004 ST 15,4(13,0) &...
0C900F14 000014 4110 0FA1 LA 1,4001(0,0) ....
0C900F18 000018 4100 0080 LA 0,128(0,0) ....
0C900F1C 00001C 8900 0018 SLL 0,0,24(0) i...
0C900F20 000020 1610 OR 1,0 ..
0C900F22 -Abnd- 0A0D SUC 13 ..
0C900F24 000024 0610 BCTR 1,0 ..
0C900F26 000026 4910 C0F6 CH 1,246(0,12) ...6
0C900F2A 00002A 4780 C02C BE 44(0,12) ....
0C900F2E 00002E 9300 C0DE TS 222(12) l...
0C900F32 000032 9812 C0EA LM 1,2,234(12) q... SKIPTS
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
Top of data

```

You can compare the information shown in the right column with your compiler output to ensure that no source and object mismatch has occurred.

The Mapped Display

When you select an area of non-program storage, either explicitly or by ZOOMing, SmartQuest attempts to automatically overlay the storage area with its field names. For most CICS and MVS control blocks, the action is successful.

For example, selecting the EXEC INTERFACE BLOCK (EIB) displays a screen similar to [Figure 60](#).

Figure 60 • Mapped Display Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Map display of the EIB -----
Field name      Length Type  Address  Offset  Contents
EIBTIME..... 4 Packed 002000D0 000000 +42339
EIBDATE..... 4 Packed 002000D4 000004 102289
EIBTRMID..... 4 Char   002000D8 000008 IQLK
EIBTASKN..... 4 Packed 002000DC 00000C +265
EIBTRMID..... 4 Char   002000E0 000010 L007
EIBRSVD1..... 2 Binary 002000E4 000014 +0
EIBCPOSN..... 2 Binary 002000E6 000016 +18
EIBCALEN..... 2 Binary 002000E8 000018 +80
EIBRID..... 1 Char   002000EA 00001A '
EIBFN..... 2 Char   002000EB 00001B X 0E02
EIBRCODE..... 6 Char   002000ED 00001D X 000000000000
EIBDS..... 8 Char   002000F3 000023 X 00000000000000
EIBREQID..... 8 Char   002000FB 00002B X 0000000000000000
EIBSRCE..... 8 Char   00200103 000033 TESTPROG
EIBSYNC..... 1 Char   0020010B 00003B X 00
EIBFREE..... 1 Char   0020010C 00003C X 00
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

If you have switched from a Mapped display to a Core display, you can redisplay the area with mapping by using the MAP command without operands. The last map name used is remembered.

Mapped Display Features

These are the main features of the Mapped display:

- The field name, length, data-type, address, offset within the area, and contents at the time of the abend are given for each field.
- Ability to scroll using accurate full page scrolling or partial page using cursor position.
- Ability to ZOOM on the field address to display a dump format screen starting from that field address. This feature allows you to view the entire contents of fields that are too large to display completely on the Mapped display. Press PF3 to return to the Mapped display. You can also ZOOM on the field contents if they contain an address.

- Use of the FIND command to quickly find any field. This is the format of the FIND command:

```
FIND      string                FIRST
          'quoted string'      LAST
          X'hex string'        PREV
                                   NEXT
```

This command locates labels that begin with the characters specified in *string*.

- Ability to switch to a Core display using the CORE command.
- For Assembler DSECTs, any EQUate statements are included in the Mapped display. [Figure 61](#) is an example of the User TCB.

Figure 61 • Assembler Map Display

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Map display of the TCB -----
Field name          Length Type  Address  Offset  Contents
TCBRBP.....         4 Hex    008F60F0 000000 X 008FD8B0
TCBPIE.....         4 Hex    008F60F4 000004 X 00000000
TCBPMASK.....        1 Hex    008F60F4 000004 X 00
TCBPIER.....         3 Hex    008F60F5 000005 X 000000
TCBDEB.....         4 Hex    008F60F8 000008 X 008BF298
TCBTIO.....         4 Hex    008F60FC 00000C X 008C1000
TCBCMP.....         4 Hex    008F6100 000010 X 80000FA1
TCBCMPF.....         1 Hex    008F6100 000010 X 80
TCBCMPC.....         3 Hex    008F6101 000011 X 000FA1
TCBTRN.....         4 Hex    008F6104 000014 X 00000000
TCBABF.....         1 Hex    008F6104 000014 X 00
TCBTRNE.....         3 Hex    008F6105 000015 X 000000
TCBMSS.....         4 Hex    008F6108 000018 X 7F6DCA78
.....               1 Hex    008F6108 000018 X "
TCBMSSB.....         3 Hex    008F6109 000019 X 6DCA78
TCBPKF.....         1 Hex    008F610C 00001C X 80
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----
```

Automatic Mapping

When source-level support is available for the abending program, other areas are automatically mapped. These include the Assembler DFHEISTG, the COBOL Working Storage, the PL/I procedure DSA, and COBOL COMMAREA. [Figure 62](#) illustrates this with an example of the working storage for a COBOL program.

Figure 62 • Map Display for COBOL Working Storage

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Map display of the wks for pgm MUC0B2A (MUC0B2A ) -----
Field name          Length Type   Address  Offset  Contents
NEXTPGM.....       8 Char   0C900B48 000000  MUC0B2AX
BIG-NAME.....      30 Char   0C900B50 000008  0123456789012345
US-FIELDS.....      1 Group   0C900B70 000028
US-CNTR-PACKED..... 1 Comp-3  0C900B70 000028 X 40
FILLER.....         1 Group   0C900B70 000028
US-CNTR.....         1 Char   0C900B70 000028

--- CLEAR=Exit 1=Help 3=End 7/8=Scroll -----

```

Manual Mapping

Areas that are not automatically mapped, such as the TWA, CWA, TCTUA, or GETMAIned storage areas, can often be manually mapped. Use the MAP command on any Core display or Disassembly display to assign a map. This is the syntax of this command:

```
MAP mapname
```

The *mapname* you specify must be a valid name from the map list for the abending program, or from the general map list. If you do not know the map names that are in these lists, use the Map Selection Menu pull-down screen to display a list of these names. You can access this screen by selecting the Maps action bar option or by typing MAPSEL.

[Figure 63](#) is an example of the Map Selection Menu.

Figure 63 • Map Selection Menu Pull-down Screen

```

ASG-SmartQuest 7.0.0 TSO
File Filter List Details Labels Maps Toggles Help
Command ==>
VIEW 1----- Core display of the TGT *----- Map Selection Menu -----
Address Offset Hexadecimal
0DD07878 000140 00000000 00000000 0 Db2prog1
0DD07888 000150 00000000 00000000 0 Dfhcommarea
0DD07898 000160 00000000 00000000 0 Dfheiblk
0DD078A8 000170 00000000 00000000 0 Wks-db2prog1
0DD078B8 000180 00000000 00000000 0 Csaopfl
                                Dbpcb
                                DbpcbK
                                Dfhabnd
                                Dfhcsads
                                Dfheiblk
                                Dfheicds
                                Dfheisds
                                Dfhldcbs
                                Dfhssads
                                Dfhscads
                                Dfhccady
                                DfhctrS
                                *-- PF3=End 7/8=Scroll -----*
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll 4=Roll -----
Position cursor at required map and press <enter>

```

Use the Up and Down PF keys to scroll the Map Selection Menu pull-down screen. You can select a map by positioning the cursor on the map name and pressing Enter.

The Core Display

When you select an area of non-program storage that cannot be automatically mapped with field names, a Core display is provided. The Core display is a standard dump format with hexadecimal data on the left and character data on the right. [Figure 64](#) is an example of a Core display.

Figure 64 • Core Display of a Storage Area

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==>
UIEU 1----- Core display of the TGT for program MUCOB2A (MUCOB2A ) -----
Address  Offset  Hexadecimal                                     Character
0C9009D8 000000 00108001 0001B428 00000000 00000000 .....
0C9009E8 000010 00000000 00000000 00000000 00000000 .....
0C9009F8 000020 00000000 00000000 00000000 00000000 .....
0C900A08 000030 00000000 00000000 00000000 00000000 .....
0C900A18 000040 00000000 00000000 F2E3C7E3 0002B018 .....2TGT...
0C900A28 000050 03000000 61020220 0004B038 0001C7FC ...../.....G.
0C900A38 000060 00000000 00000000 00000029 00000000 .....
0C900A48 000070 00000000 00000000 00000000 00000000 .....
0C900A58 000080 0001AAC0 00000000 00000000 00000000 .....
0C900A68 000090 00000002 00000000 E2E8E2D6 E4E34040 .....SYSOUT
0C900A78 0000A0 C9C7E9E2 D9E3C3C4 00000000 00000000 IGZSRICD.....
0C900A88 0000B0 00000000 00000000 00000000 00000000 .....
0C900A98 0000C0 00000000 00000000 00000000 00000000 .....
0C900AA8 0000D0 00000000 00000000 00000000 00000000 .....
0C900AB8 0000E0 00000000 00000000 00000000 00000002 .....
0C900AC8 0000F0 0C900B1C 0004B328 0C9007B3 00000000 .....
--- CLEAR=Exit 1=Help 3=End 7/8=Scroll 4=Roll -----

```

Core Display Features

These are the main features of the Core display:

- Ability to ZOOM on the hexadecimal portion of the screen by placing the cursor on any byte in this portion of the display and pressing Enter. The 4 bytes starting with the byte at the cursor position are used as a ZOOM address.
- Ability to scroll using accurate full page scrolling or by partial page using cursor position.
- Ability to modify the starting offset of the display using these commands:

+xxxxxxx Adds the hexadecimal offset xxxxxx to the current start offset.

-xxxxxxx Subtracts the hexadecimal offset xxxxxx from the current offset.

=xxxxxxx Displays from the hexadecimal offset xxxxxx.

In these commands, xxxxxx is a hexadecimal value between 0 and FFFFFFFF.

- Switches to a Mapped display using the MAP command.

- Disassembles any storage using the ASSEM command.
- Converts a Disassembly, Source, or Mapped display to a Core display using the CORE command.
- Core displays are always shown last. That is, they are shown only for non-program storage that cannot be automatically mapped with field names. To force a Core display to be shown for all cases, use the ZFORMAT toggle command or use the Toggles action bar pull-down menu.
- A FIND command using conventional syntax is available using this format:

```
FIND      string                FIRST
          'quoted string'      LAST
          X'hex string'        PREV
                                   NEXT
```

- Use RFIND to repeat the last FIND command.

4

Utilities

This chapter describes the utilities available in SmartQuest and contains these sections:

Section	Page
Using the Snap Dump Facility	92
Printing Offline Dumps	92
Providing Source Support	94
Maintaining and Listing the Source File Contents	97

These offline utilities are available to provide additional functions or to support the online features.

Utility	Member/Job Name - CICS	Member/Job Name - MVS
Printing offline dumps	VICQPRT	VISQPRT
Providing source-level support (post-compile processor)	VICQPST	VICQPST
Maintaining and listing the source file contents	VICQPST	VICQPST

Using the Snap Dump Facility

The VISQSNAP module enables you to code CALLs that produce a dump at the point where the CALL is made. This enables you to examine a dump before the program abends.

These are examples of how you can invoke VISQSNAP using COBOL, PL/I, or Assembler.

- Assembler Static CALL:

```
L      R15,=V(VISQSNAP)          Load address of SNAP module
BASSM R14,R15
```

- Assembler Dynamic CALL:

```
LOAD  EP=VISQSNAP,ERRET=error route (Load the SNAP module)
LR    R15,R0                    (Address SNAP module entry point)
BASSM R14,R15
```

- COBOL Static CALL:

```
CALL 'VISQSNAP'
```

- COBOL Dynamic CALL:

```
WORKING-STORAGE SECTION.
77  SNAP-PGM  PIC X(8) VALUE 'VISQSNAP'
.
.
PROCEDURE DIVISION.
    CALL SNAP-PGM
```

- PL/I CALL:

```
DCL VISQSNAP ENTRY OPTIONS(ASSEMBLER INTER);
CALL VISQSNAP;
```

Printing Offline Dumps

The member VICQPRT (CICS) or VISQPRT (MVS), on the SmartQuest JCL library, contains the JCL job necessary to produce a print of any dump from your SmartQuest dump file. The JCL job is also shown.

To modify the print job JCL

- 1 Change or replace the job card with your job card information.

- 2 Change the high-level qualifier of the SmartQuest for MVS dataset names to ones that reflect your company standards.
- 3 Change ##### to the required dump number. Ensure the DSN for the HSDUMP DD is complete and correct.

Note:

You can dynamically build and submit this job using the online print submit facility. See ["Online Print Job Submission" on page 52](#) for more information.

MVS

```
//ASG      JOB ( ), 'ASG-SMARTQUEST',NOTIFY=&SYSUID
//*
//*
//*
//*****
//* ASG, INC.                ASG-SMARTQUEST FOR MVS          *
//*                                                                    *
//* MEMBER NAME: VISQPRT                                       *
//*                                                                    *
//* DESCRIPTION: DUMP PRINT UTILITY                             *
//*                                                                    *
//* INSTRUCTIONS:                                             *
//*                                                                    *
//* 1.  CHECK PARAMETER VALUES IN STATEMENTS BELOW          *
//* 2.  CHANGE ##### TO THE REQUIRED DUMP NUMBER.  ENSURE THE DSN *
//*      FOR THE MVDUMP DD BELOW IS COMPLETE AND CORRECT.    *
//*                                                                    *
//*****
//          SET  ASG='ASG'
//          SET  CENTER='VIACENXX'
//          SET  SYSDA='SYSDA'
//          SET  SYSOUT='*'
//VISQPRT EXEC PGM=VISQPRT,REGION=1M
//STEPLIB DD  DISP=SHR,DSN=&ASG..&CENTER..LOADLIB
//SYSABEND DD  SYSOUT=&SYSOUT
//SYSUDUMP DD  SYSOUT=&SYSOUT
//MVDUMP  DD  DISP=SHR,DSN=&ASG..&CENTER..D#####
//MVINDEX DD  SYSOUT=&SYSOUT
//MVPRINT DD  SYSOUT=&SYSOUT
//*
```

CICS

```
//ASG      JOB ( ), 'ASG-SMARTQUEST', NOTIFY=&SYSUID
// *
// *
// *
// *****
// * ASG, INC.          ASG-SMARTQUEST FOR CICS *
// * *
// * MEMBER NAME: VICQJPRT *
// * *
// * DESCRIPTION: DUMP PRINT UTILITY. *
// * *
// *****
// *
//          SET  ASG='ASG'
//          SET  CENTER='VIACENXX'
//          SET  SYSDA='SYSDA'
//          SET  SYSOUT='*'
//VICQUPRN EXEC PGM=VICQUPRN,REGION=1M
//STEPLIB DD DISP=SHR,DSN=&ASG..&CENTER..LOADLIB
//SYSABEND DD SYSOUT=&SYSOUT
//SYSUDUMP DD SYSOUT=&SYSOUT
//HSDUMP DD DISP=SHR,DSN=&ASG..&CENTER..D#####
//HSINDEX DD SYSOUT=&SYSOUT
//HSPRINT DD SYSOUT=&SYSOUT
```

Providing Source Support

To provide source-level support for your application programs, the necessary information must be available in the SmartQuest source file. This information does not need to be in the file when the abend occurs because you can add it later.

Note: _____

Your source file information must exactly match your load modules to receive predictable results.

Source information is added to the SmartQuest source file by running the compiler output of your programs through a special post-compile processor. You must modify your compile and assembly JCL decks.

See the *ASG-SmartQuest Installation Guide* for more information about modifying your compile JCL decks.

This is the basic post-compile JCL:

```
//VICQUPST EXEC PGM=VICQUPST,
//          COND=( 5,LT,COBOL2_COMPILE_STEP_NAME)
//STEPLIB DD DSN=VIASOFT.VIACENXX.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSABEND DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//HSSOURCE DD DSN=VIAHLQ.VIAMLQ.SOURCE,DISP=SHR
//ISOURCE  DD DSN=&&COBOUT,DISP=(OLD,DELETE)
//OSOURCE  DD SYSOUT=*,DCB=(BLKSIZE=1330,LRECL=133,RECFM=FBA)
//OREPORT  DD SYSOUT=*,DCB=(BLKSIZE=1330,LRECL=133,RECFM=FBA)
//OTEMPSRC DD DSN=&&TMP SRC,DISP=(NEW,PASS),
//          SPACE=(TRK,(50,5),RLSE),UNIT=SYSDA,
//          DCB=(BLKSIZE=4096,LRECL=4092,RECFM=V)
//IPARMS   DD *
UPDATE,LANG=COBOL2,LOADMOD=YOUR_LOAD_MODULE_NAME
/*
/* THE NEXT STEP IS ONLY RUN IF THE COMPILE ENDED RETURN CODE 5 OR
/* HIGHER.
//PRINT    EXEC PGM=IEBGENER,
//          COND=( 5,GE,COBOL2_COMPILE_STEP_NAME)
//SYSUT1   DD DSN=&&COBOUT,DISP=(OLD,DELETE)
//SYSUT2   DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
//SYSIN    DD DUMMY
/
//
```

The post-compile utility program is VICQUPST. The STEPLIB DD card specifies the SmartQuest load library that contains this program. These are the other significant DD cards:

- HSSOURCE is the SmartQuest VSAM KSDS source file. This is where the final source support information for the processed program is written.
- ISOURCE is a dataset containing your compiler or Assembler output listing.
- OSOURCE is where a copy of your compiler or Assembler output listing is written, and this DD card should therefore specify a SYSOUT dataset.
- OTEMPSRC is a temporary work file. All source file records are written to this temporary dataset. When the post-compile processing is complete and all the records have been built, they are copied to the VSAM source file (HSSOURCE).

- IPARMS is the required input parameter card. To provide source support, this parameter card must have this format:

UPDATE , LANG=*language* , LOADMOD=*load-module-name* , CHG=*new-name*

where:

Parameter	Description
LANG=	<p>Required and must be one of these languages:</p> <ul style="list-style-type: none"> • COBOL2 (COBOL 2 release 3 and later) • COBOL370 (COBOL for MVS and VM) • PLI (PL/I 2.3.0) • PLI370 (PL/I for MVS and VM) • ASMH (Assembler H) • HLASM (High-level Assembler)
LOADMOD=	<p>Optional and, if present, it must specify the final load module name that this program forms a part of. If you omit this operand, a default load module name is assigned. In the case of COBOL, this name is the name on the first PROGRAM ID card. For PL/I, this name is the main procedure name. For Assembler, this name is the first CSECT name.</p>
CHG=	<p>Optional and, if specified, must appear last. When information is not stored in the source support file, it is held under LOAD MODULE NAME as the main key and CSECT NAME as the minor key. (For COBOL the CSECT name is the name specified in the PROGRAM ID field.) If the CSECT name is changed during the link-edit by a CHANGE card, source is not provided. Use the CHG= parameter to avoid this problem. For example, if a COBOL program is CALLED HSCOB2A in the PROGRAM ID field, but the link-edit contains the card CHANGE HSCOB2A(HSCOB201), then code the IPARMS like this:</p> <p style="text-align: center;">UPDATE , LANG=COBOL2 , LOADMOD=HSCOB2A , CHG=HSCOB201</p>

- OREPORT= is a SYSOUT dataset where the post-compile processor writes informational and error messages. Check this output to ensure that post-compile processing has been successfully completed.

The second step named PRINT is only executed if your actual compile step ends with an unacceptable return code. This PRINT step causes the compiler output to be written straight to a SYSOUT dataset so that compiler errors can be examined.

Samples of these steps for each programming language can be found in these members in the SmartQuest JCL library:

Language	CICS	MVS
COBOL 2	VICQJCC2	VISQJCC2
COBOL370	VICQJCC3	VISQJCCE
PL/I	VICQJPLI	VISQJPLI
PL/I370	VICQJ370	VISQJ370
ASMH	VICQJCAS	VISQJCAS
HLASM	VICQJHLA	VISQJHLA

Maintaining and Listing the Source File Contents

You can also use the VICQUPST program to delete or list entries on the source file. The sample JCL job is similar to the JCL shown in the above source support section. These are the differences:

- The ISOURCE, OSOURCE, and OTEMPSRC DD cards should all specify DD DUMMY.
- The IPARM card should specify one of these options:
 - LIST
 - LIST,LOADMOD=*load-module-name*
 - DELETE,LOADMOD=*load-module-name*
 - DELETE,DATE=*yyyymmdd*
 - DELETE,LOADMOD=*load-module-name*,DATE=*yyyymmdd*
 - FLIST,LOADMOD=*load-module-name*
 - LIST, specified by itself, lists all load modules for which source-level support exists. For each module on this list you can see the module and CSECT names, the date this source support information was created, the language of the module and some statistics about its source file records.
- You can specify a module name for LIST. Use a specific name to produce a report for a single load module, or a generic name to produce a report for a group of load modules. For example, LOADMOD=MYPROG or LOADMOD=MY*.

- DELETE is used to delete a single entry or a group of entries from the source file. You must specify a load module name, a generic load module name, or a date parameter. The date is in the format YYYYMMDD and causes all entries added to the file before that date to be deleted. You can specify both a LOADMOD and a DATE parameter when deleting entries.
- FLIST must have a non-generic load module name supplied on the LOADMOD parameter. This option produces a diagnostic listing of the source file information for a single entry on the file. It is not intended for customer use but may be requested by ASG Customer Support.

A sample of the LIST option output is shown in [Figure 65](#). The DELETE option produces similar output.

Figure 65 • Sample LIST Option Output

Load Module		Csect Name	Date YYYY/MM/DD	Language	Source Records	Source Index Records	Stmt/Offset Records	Mapping Records	Assoc. Data Records	Assoc. Data Index Records
MVMAPPRG	MVMAPPRG		2002/04/30	Assembler H	81	1	2	36	0	0
VISQSASM	VIAPXESA		2002/06/27	HL Assembler	28	1	2	7	0	0
VISQSCOB	VISQSCOB		2002/06/27	Cobol 2	2	1	1	4	1	1
VISQSPLI	VISQPLI1		2002/06/27	PLI	1	1	1	12	1	1

LIST processing completed
 Total Entries 00000004
 Return code = 00
 Highest RC = 00

The JCL to run these different utilities are in the SmartQuest JCL library:

Utility	CICS	MVS
Lists entries on your source file.	VICQJLST	VISQJLST
Delete entries on your source file.	VICQJDEL	VISQJDEL
Produces a diagnostics listing.	VICQJFIL	VISQJFIL

5

Reporting Problems

These sections discuss the procedures you should follow in the event of a problem with any component of this software, and contains these sections:

Section	Page
Dump Viewer Problems	100
Problems With Batch Utilities	101

Note:

Dumps, tapes, and diskettes are requested only as a last resort. Every effort is made to resolve problems quickly without having to request this type of information from our customers. However, such information is required in some circumstances.

Dump Viewer Problems

If an abend occurs in the dump viewer program, it is handled by the product's own abend trapping and recovery routine. If this happens, the screen in [Figure 66](#) appears.

Figure 66 • Abend Notification Screen

```
----- ASG-SmartQuest for CICS - AbendNotificationPanelImage -----
COMMAND ===>
Modify the following panel image as required, press ENTER.

  An error has occurred processing your request.

  Please contact:%CONTACT+++++

  You may be asked to provide the following information:

  Date and time of error --DD.MM.YY --HH.MM.SS
  CICS Applid -----%CICSAPPL
  CICS Transaction ID ----%TRAN
  CICS Terminal ID -----%TERM
  CICS Abend Code -----%ABND
  CICS Task Number -----%TASKN
  CICS User ID -----%CICSUSER

  Press <CLEAR> when ready to continue.

  Press END key to return to the menu.
```

You should fax a hard copy of this screen immediately to ASG Customer Support. If you are using the CICS interface, SmartQuest also captures its own dump. You should save (Hold) this dump in case further information is required.

If a dump appears as Incomp on the dump viewer list, you should expect errors in the display facility when you try to examine this dump. If an incomplete dump situation occurs, it is most likely due to an abend during the capture that is not handled and recovered. Report any abends in the dump capture that cause dump capture failure to ASG Customer Support.

CICS

Print and keep the CICS transaction dump that is produced for these abends and fax the PSW and registers from the beginning of the dump.

MVS

Rerun the job after adding this DD card to your JCL and send the JES messages output to the ASG Customer Support.

```
//DBGINQST DD DUMMY
```

If you have incorrect information on a Source display or a Mapped display, and you have determined that it is not a case of a source and object mismatch, send a hard copy of the screen with any inaccurate information clearly highlighted. You may be asked to supply a copy of your compiler output and an FLIST utility printout for the program concerned. These can be on paper, 3.5-inch diskette, or 3480 or 3490 cartridge, whichever is convenient.

For other problems, please send hard copies of the screens and/or any other supporting documentation. Also, if possible, please send a complete description of the events leading up to the error.

Problems With Batch Utilities

If the post-compile processor or any of the other offline utilitiesabend, send the PSW and registers from the dump and retain the dump in case further information is required. In the case of the post-compile processor, you may also be asked to provide the compiler output on 3480 cartridge or 3.5-inch diskette.

For other Batch utility problems, please supply hard copies clearly illustrating the nature of the problem.

Appendix A

Messages

CICS

These messages are produced and written to the CSSL TD QUEUE by default. You can change the TDQUEUE name for SmartQuest for CICS messages by modifying the TDQNAME customization parameter. They are also written to the LOG file, if you have this active.

VSA1110I Initializing SmartQuest x.x.x/xxx on CICS xxxxxxxx
Issued to advise you that the SmartQuest for CICS initialization has begun.

VSA1111I SmartQuest is terminating
Issued to advise you that the SmartQuest for CICS abend trapping mechanism is being halted.

VSA1112I SmartQuest termination completed
Issued to inform you that the abend trapping mechanism has been successfully halted.

VSA1113I SmartQuest is active
Information message regarding abend trapping mechanism status.

VSA1114I SmartQuest is not active
Information message regarding abend trapping mechanism status.

VSA1115I SmartQuest - Starting abend trapping transaction
Issued during initialization to inform you that the abend trapping transaction is about to be started.

VSA1116I SmartQuest - Initialization is now complete
Issued when all initialization logic has been successfully executed.

VSA1117I SmartQuest -Customization module LOAD has failed
Issued when the customization module fails to load.

VSA1118I SmartQuest - Input does not contain a command
Issued when you fail to enter a command with the IQST transaction.

- VSA1119E SmartQuest - Load of xxxxxx has failed for EIBRESP
Error message caused by a failed attempt to load the exit program VICQCXPG.
- VSA1124I Commencing installation verification
Issued during initialization when the PPT, PCT, and FILE installation verifications commence.
- VSA1125E Program xxxxxxxx is not defined to CICS
Issued when a PPT entry is missing for a required SmartQuest for CICS program.
- VSA1126E Program xxxxxxxx is not enabled
Issued when a required SmartQuest for CICS program is flagged as disabled.
- VSA1127E Transaction xxxx is not defined to CICS
Issued during initialization when a PCT entry for a required SmartQuest for CICS transaction is missing.
- VSA1128E Transaction xxxx is not enabled
Issued during initialization when a required SmartQuest for CICS transaction is flagged as disabled.
- VSA1129E File xxxxxxxx is not defined to CICS
Issued during initialization when a required SmartQuest for CICS file definition is missing.
- VSA1130E Open of file xxxxxxxx has failed
Issued during initialization when an EXEC CICS OPEN for an SmartQuest for CICS dataset fails.
- VSA1131E Password xxxxxxxxxxxxxxxxxxxx is invalid
Issued during initialization when the password supplied in the customization module is invalid.
- VSA1132E SmartQuest - Trial period has expired
Issued when the product has been installed on a trial basis, but the trial period has expired.
- VSA1133E SmartQuest - Product license has expired
Issued when the product has been installed under a rental agreement but the rental period and the 30-day grace period for renewal of the agreement have expired.
- VSA1134W SmartQuest - Trial will expire in x day(s)
Issued when a trial period is 7 days or less from expiration.
- VSA1135W SmartQuest - Product license will expire in x day(s)
Issued when a rental period is 7 days or less from expiration.
- VSA1136W SmartQuest - Use of product will be allowed for another xx day(s)
Issued each day during the 30-day grace period after rental agreement expiration.

- VSA1137E SmartQuest - Initialization has failed
Issued when any serious initialization errors have been found. Other preceding messages describe these errors.
- VSA1138E SmartQuest - IQST transaction not authorized
This message displays when the current user is not authorized to run the IQST (start/stop) transaction. In this case, this is not due to RACF or similar external security software, but due to the SmartQuest for CICS internal security table settings.
- VSBI075I SmartQuest - Dump capture commencing for transaction xxxx
Issued when dump capture commences.
- VSBI076I SmartQuest - Dump capture complete for transaction xxxx
Issued when dump capture has been successfully completed.
- VSBI078E SmartQuest - Unable to locate abending tasks TCA
Issued probably due to a storage corruption.
- VSBI079E SmartQuest - Load of customization module has failed
Issued when an EXEC CICS LOAD of the customization module VICQMCTM has failed.
- VSBI080E SmartQuest - GETMAIN of dump file I/O area has failed
Self explanatory.
- VSBI081I SmartQuest - Capture of duplicate transaction xxxx has been suppressed.
Issued when a duplicate dump is detected and its capture is suppressed.
- VSBI082E SmartQuest - Error writing to dump file - EIBRESP=xxxxxxxx, EIBRESP2=xxxxxxxx
Issued when an attempt to write a record to the dump file fails. Used to provide diagnostics for your technical support group.
- VSBI083I SmartQuest - Abend xxxx occurred in tran xxxx, program xxxxxxxx, offset xxxxxx
Issued when an abend is processed by SmartQuest for CICS. Used to produce statistics reports.

MVS

These messages are produced and are written to the SmartQuest for MVS LOG file and system log. You can print the full list of SmartQuest for MVS messages.

- MVA0001E Load of VISQMCTM failed - RC=xxxxxxxx
Issued by the auto delete subtask when it fails to load the base customization module VISQMCTM.
- MVA0002 Auto delete commencing
Issued by the auto delete subtask.
- MVA0003I Auto delete completed
Issued by the auto delete subtask.
- MVA0004I Auto delete feature suppressed
Issued by the auto delete subtask.
- MVA0005E Open failure. File=xxxxxxxx, RC=xxxxxxxx,xxxxxxxx
Auto delete subtask attempted to open an SmartQuest for MVS file but received an unexpected return code/error code.
- MVA0006E Invalid job PARM specified
Issued when the auto delete utility is run as a stand-alone task and incorrect PARM data has been specified.
- MVA0007I Deleting. Job=xxxxxxxx, Abend=xxxx, Date=yyyy-mm-dd
Issued when the auto delete subtask has selected a dump for deletion.
- MVA0008W Auto delete error - GETMAIN failed
Issued by the auto delete subtask when its dynamic storage GETMAIN request fails.
- MVA0009W Auto delete error - ENQ failed
To ensure the integrity of the dump file, the auto delete subtask issues an MVS ENQ to single thread all dump file IO. If the ENQ request fails, this message is issued.
- MVA0010E Dynamic allocation error. File=xxxxxxxx RC=xxxxxxxx
The auto delete subtask dynamically allocates all SmartQuest for MVS files. If any allocation request fails, this message appears followed by MVA0011I.
- MVA0011I File=xx
Issued after an MVA0010E dynamic allocation error message and gives the DSN of the failing file.

- MVI0004E Load of VISQCDTC failed - RC=xxxxxxxx
VISQCDTC is located in the SmartQuest for MVS LINKLIB. It is the SVC 51 hook and must be loaded for the product to function correctly. Check that the SmartQuest for MVS LINKLIB has been correctly added to your LNKLST and has been properly APF authorized.
- MVI0005I VISQCDTC successfully loaded at xxxxxxxx
Issued to provide the load point address of SmartQuest for MVS SVC 51 hook.
- MVI0006I Activating ASG-SmartQuest for MVS SVC 51 hook
Issued during initialization to tell you that the abend trapping mechanism (the SVC 51 hook) is about to be started.
- MVI0007E Attempt to hook SVC 51 failed - RC=xxxxxxxx
Issued when the SVCUPDTE macro returned a non-zero return code.
- MVI0008I ASG-SmartQuest for MVS abend trapping is now active
Issued to advise you that the SVC 51 hook has been successfully activated.
- MVI0009E ASG-SmartQuest for MVS initialization has failed
Issued when product initialization has failed. This message is preceded by another message describing the nature of the failure.
- MVI0010E Password XXXXXXXXXXXXXXXXXXXX is invalid
The password specified when you customized the product is invalid. Check that this has been entered correctly. If it has, contact ASG Customer Support immediately.
- MVI0011E Trial period has expired
Issued when the product has been installed on trial basis but the trial period allowed has expired.
- MVI0012E Product license has expired
Issued when the product has been installed under a rental agreement but the rental period and the 30-day grace period for renewal of the agreement have expired.
- MVI0013W Use of product will be allowed for another xxx days....
Issued each day during the 30-day grace period after rental agreement expiration.
- MVI0014W Trial period will expire in x day(s)
Issued when a trial period is 7 days or less from expiration.
- MVI0015W Product license will expire in x day(s)
Issued when a rental period is 7 days or less from expiration.
- MVI0016I Attaching auto delete subtask EP=VISQJATD
Auto deleting of dumps can be a slow task, especially if there are many dumps. In order that the SmartQuest for MVS dump capture initialization is not slowed dramatically, the auto deletion is performed by a subtask. This message informs you that it is about to be attached.

- MVI0017I Auto delete subtask attach successful
Issued when the auto delete subtask is successfully attached and auto deletion is about to commence.
- MVI0018W Auto delete subtask attach failed
Issued when the ATTACH macro returns a non-zero return code.
- MVI0019I SmartQuest for MVS version x.x/xx is currently active
Issued in response to an F MVSINQST,STATUS operator command.
- MVI0020I SmartQuest for MVS version x.x/xx is NOT currently active
Issued in response to an F MVSINQST,STATUS operator command.
- MVI0021I SmartQuest for MVS shutdown is now complete
Issued after successfully processing an F MVSINQST,SHUT operator command.
- MVI0022W SmartQuest for MVS shutdown request ignored
Issued when an F MVSINQST,SHUT command has been issued but SmartQuest for MVS is already shutdown.
- MVI0023E Open failure. File=xxxxxxxx, RC=xxxxxxxx,xxxxxxxx
Issued when an attempt to open the file xxxxxxxxxx gave a bad return code/error code.
- MVI0024I True SVC 51 routine is at xxxxxxxx
Issued during initialization. Informational message only to indicate the address of the true SVC 51 processing routine that is replaced by our hook address.
- MVI0025E Invalid job PARM specified
Issued when invalid parameters have been specified on the MVSINQST start command or in the MVSINQST procedure JCL.
- MVI0026W Termination of SmartQuest for MVS requested
Issued in response to a P MVSINQST command.
- MVI0027W SVC 51 address will be reset to xxxxxxxx
Issued in response to a P MVSINQST command after MVI0026W.
- MVI0028E Reset of SVC 51 address failed, rc=xxxxxxxx
Issued when the SVCUPDTE macro failed to restore the true SVC 51 address to the SVC table after a P MVSINQST command was issued.
- MVI0029I Reactivating SmartQuest for MVS version x.x/xx
Issued in response to an F MVSINQST,INIT command.
- MVI0030I Deactivating SmartQuest for MVS version x.x/xx
Issued in response to an F MVSINQST,SHUT command.

- MVI0034E Dynamic allocation error. File=xxxxxxxx RC=xxxxxxxx
Issued when an attempt to dynamically allocate a required SmartQuest for MVS file fails.
- MVI0035I Commencing dynamic allocation of files
Issued when file dynamic allocation routine is entered.
- MVI0036I Dynamic allocation of files completed.
Issued when all files have been successfully allocated.
- MVI0037I xxxxxxxxxxx=xx
Issued during dynamic allocation. 1 for each file allocated. Format is DDNAME=DSNAME.
- MVI0038I Debug feature is active
Issued in response to an F MVSINQST,DON operator command. Indicates that the global abending job trace feature is active.
- MVI0039I Debug feature is not active
Issued in response to an F MVSINQST,DOFF operator command. Indicates that the global abending job trace feature is not active.
- MVI0040E SmartQuest for MVS already started
Issued in response to an S MVSINQST command when a previous S MVSINQST has been successfully processed.
- MVI0041E SmartQuest for MVS start-up has abended
Issued when the start-up program, VISQCSTR, abends. The PSW and registers at the time of abend are output in the MVI0042E and MVI0043E messages.
- MVI0042E PSW = xxxxxxxxxxx xxxxxxxxxxx.
Issued after MVI0041E and shows the PSW at the time of the start-up abend.
- MVI0043E xxxxxxxxxxx xxxxxxxxxxx xxxxxxxxxxx xxxxxxxxxxx
Issued after MVI0041E and MVI0042E. Four messages appear, each showing 4 register contents from the start-up abend. The first shows R0-R3, the next R4-R7, etc.

MVL0002E Load of MVCUSTOM has failed - RC=xxxxxxxx

MVL0005E Open failure. File=xxxxxxxx, RC=xxxxxxxx,xxxxxxxx

MVL0008E xxxxxxxxxxx=xx

MVL0009E Dynamic Allocation error. File=xxxxxxxx,RC=xxxxxxxx

MVL0010E **WARNING** Non recoverable error detected

MVL0011E PSW address = xxxxxxxxxxx xxxxxxxxxxx,Code = xxxx

MVL0012E xxxxxxxxxxx xxxxxxxxxxx xxxxxxxxxxx xxxxxxxxxxx

MVL0019I ==> Job=xxxxxxxx,Pgm=xxxxxxxx,Code=xxxx,O/S=xxxxxx

MVT0001E Load of customization module has failed
 Issued during SmartQuest for MVS installation when the customization module fails to load. Contact your installation and maintenance System Programmer.

MVT0002E GETMAIN of control area has failed
 Contact your installation and maintenance System Programmer.

MVT0003E Open of file xxxxxxxx has failed - reasonx=xxx
 Contact your installation and maintenance System Programmer.

MVT0004E Use of TSO display facility not authorized
 Issued during SmartQuest for MVS installation. Contact your installation and maintenance System Programmer.

MV1A0001 SmartQuest for MVS version of VISQCIEA invoked

MV1B0001 SmartQuest for MVS version of VISQCIEB invoked

MV1C0001 SmartQuest for MVS version of VISQCIEC invoked

MV1P0001 SmartQuest for MVS version of VISQCIEP invoked
 Issued when one of the SmartQuest for MVS PL/I 2.3.0 STAE/SPIE intercept routines is invoked.

MV10002E Load of MVCUSTOM has failed - RC=xxxxxxxx
 Issued when the capture process requests a load of the base customization module and this load fails.

MV10005E Open failure. File=xxxxxxxx, RC=xxxxxxxx,xxxxxxxx
 Issued when an attempt to open an SmartQuest for MVS file returns a bad return code/error code.

Appendix B

Command Summary

This section is a quick reference summary of all the SmartQuest for CICS commands. You can perform most commands using alternative methods as indicated in the text. The commands have been grouped logically into subsections.

Action Bar Equivalent Commands

Command	Description
DETAILS or DETS	Displays the Dump Details Menu pull-down screen.
FILE	Displays the File Selection menu.
FILTER	Displays the Dump Filter Criteria pull-down screen.
HELPM	Displays the Help Menu pull-down screen for access to online help.
LABELS or LABS	Displays the Labels pull-down screen. This command is only effective if labels have been assigned to the currently selected dump.
LIST	Displays the Selected Dump List pull-down screen listing the requested dumps.
MAPSEL	Displays the Map Selection Menu pull-down screen. This command is only effective on screens where field mapping is allowed.
TOGGLES	Displays the Toggles pull-down screen.

Assigning and Locating Labeled Screens

Command	Description
LOCATE <i>label-name</i> or L <i>label-name</i>	Retrieves and displays the screen with the assigned label. You can also perform this function using the Labels action bar option to display the Labels pull-down screen.
SET <i>label-name</i> or S <i>label-name</i>	Assigns or reassigns the label <i>label-name</i> to the current display. The name can be 1 to 30 characters in length. The first must be alphabetic (A-Z); the remaining can be any keyboard characters, including imbedded blanks.

Note: _____

See ["The Labels Action Bar Option" on page 60](#) and ["Labeling Screens" on page 17](#) for more information.

Scrolling

Command	Description
DOWN	Scrolls down.
LEFT	Scrolls left.
MDOWN or M and (assigned Down PF key)	Scrolls to the bottom.
MUP or M and (assigned Up PF key)	Scrolls to the top.
RIGHT	Scrolls right.
UP	Scrolls up.

Note: _____

If the scrolling feature is enabled, this is indicated at the bottom of the screen. On pull-down screens only, full page scrolling is supported. On all other scrollable screens, partial scrolling is supported. Position the cursor and scroll up to make the cursor line the top line of the next display. Position the cursor and scroll down to make the cursor line the bottom line on the next display.

Controlling the View Stacks

Command	Description
CLOSE <i>n</i>	Closes a view stack without losing its contents. <i>n</i> is the view stack number to be closed in the range 1 through 4.
END	Drops down a level in the current view stack. The current display is discarded.
SWAP	Switches logically from the current view stack to the next open view stack. If all 4 view stacks are open, the sequence goes from 1 to 2, to 3, to 4, and back to 1. Closed view stacks are omitted.
VIEW <i>n</i> or V <i>n</i>	Opens a new view stack or switches the current display to an already opened view stack. Because there are a maximum of 4 view stacks, <i>n</i> must be in the range 1 through 4.

Dump Details Command Equivalents

Command	Description
DB2	Displays the last DB2 call information screen, if available.
DLI or DL1	Displays the last DL/1 call information screen, if available.
IBMHELP or IBMHELP <i>abend code</i>	Displays the help information from the IBM-supplied CICS/ESA file DFHCMACD. If you do not specify an operand, the command shows the information for the current dump abend code. By specifying an operand, you can view information for any other abend code.
PROGRAMS or PROGS	Displays the Program calling chain detail screen.
PSW or REGS	Displays the PSW and Registers screen.
SCRN or XSCRN	Displays the last 3270 screen, if available. The SCRN command displays the screen as the user sees it with the cursor in place. The XSCRN command displays it in standard dump format and allows you to examine the buffer control characters.
SPROGS	Displays the Program calling chain summary screen.

Command	Description
STORAGE or STOR	Displays the CICS control block and acquired storage screen.
SUMMARY or SUM	Displays the Abend summary screen.
TRACE	Displays the Trace table entries.

Mapped Display Commands

Command	Description
CORE	Switches from a Mapped display to a Core display.
<i>F string</i> FIRST/LAST/NEXT/P REV	Searches only the field names portion of the screen looking for a name with its initial characters matching the specified string. NEXT is assumed if PREV, FIRST, and LAST are omitted.
RFIND	Repeats the last FIND command issued.

Toggle Pull-down Screen Equivalent Commands

Command	Description
ABAR	Turns the action bar tabs items on and off. This command does not disable the action bar itself, so you can position the cursor on an action bar option and press Enter to display the pull-down screens.
ADATA	Turns the Source Display Associated Data window on and off.
DATA	Changes both the current ADATA and FDATA switch settings. It either turns both off, turns both on, or reverses the settings if one is currently off and the other is on. You can also use the Toggles pull-down menu.
FDATA	Turns the Source Display Field Data Value feature on and off.
HEX	Forces all data on the Source display or Mapped display to be shown in hexadecimal format or returns to the default data type display (i.e., acts like TSO 'HEX' and 'HEX OFF').
MODE	Switches the ZOOM address AMODE from 31 bit to 24 bit and back.
ZFORMAT	Turns the zoom format flag on and off. When turned On, all screens shown in response to a ZOOM are Core displays. When turned Off, the default type displays are shown (Source or Disassembly for program storage, Mapped with field names for non-program storage).

Trace Display Commands (CICS Only)

Command	Description
<i>F string</i> FIRST/LAST/NEXT/P REV <i>start-column</i> <i>end-column</i>	Finds the specified string in your trace. The string can be normal characters, in single or double quotes, or a hexadecimal string in the format X'xxxx..xxxx'. NEXT is assumed if you do not specify PREV, LAST, or FIRST. <i>Start-column</i> and <i>end-column</i> are optional.
RFIND	Repeats the last FIND command issued.

Source Display Commands

Command	Description
* or INS	Displays the page of source containing the failing or calling statement.
ASSEM or ROLL	Switches from a Source display to a Disassembly display.
CORE	Switches from a Source display to a Core (standard dump format) display.
<i>F string</i> FIRST/LAST/NEXT/PRE <i>V start-column</i> <i>end-column</i>	Finds the specified string in your source listing. The string can be normal characters, in single or double quotes, or a hexadecimal string in the format X'xxxx..xxxx'. NEXT is assumed if you do not specify PREV, LAST, or FIRST. <i>Start-column</i> and <i>end-column</i> are optional.
LOCATE <i>nnnnnn</i> or L <i>nnnnnn</i>	Locates the specified source line <i>nnnnnn</i> , where <i>nnnnnn</i> is in the range 1 to the maximum line number of the program being displayed.
RFIND	Repeats the last FIND command issued.
USING <i>dsect-name,Rnn</i>	Changes the default base register that is used to calculate the address and contents of fields in the specified DSECT (for Assembler Source displays only).

Disassembly Display Commands

Command	Description
+xxxxxxx	Adjusts the start offset of the disassembly by adding the hexadecimal offset xxxxxxx to the current start offset.
=xxxxxxx	Changes the start offset of the disassembly to the offset specified in the hexadecimal value xxxxxxx.
CORE or ROLL	Switches from a Disassembly display to a Core display.
<i>F string</i> FIRST/LAST /NEXT/PREV	Finds the specified string, which may be characters in single or double quotes or a hexadecimal string in the format X'xxxx..xxxx'. NEXT is assumed if PREV, FIRST, and LAST are omitted.
MAP or MAP <i>map-name</i>	Switches to a display mapped with field names. If the area has been shown mapped before, the MAP command by itself suffices, because the map name is remembered. To map a previously unmapped area or to map it with a different map, specify the required map name as an operand of the command. Use the Maps action bar option to display a list of available maps.
RFIND	Repeats the last FIND command issued.
SOURCE	Switches to a Source display if source support is available.
-xxxxxxx	Adjusts the start offset of the disassembly by subtracting the hexadecimal offset xxxxxxx from the current start offset.

Core Display Commands

Command	Description
+xxxxxxx	Adjusts the start offset of the Core display by adding the hexadecimal offset xxxxxxx to the current start offset.
=xxxxxxx	Changes the start offset of the Core display to the offset specified in the hexadecimal value xxxxxxx.
ASSEM	Switches from a Core display to a Disassembly display.
<i>F string</i> FIRST/LAST/ NEXT/PREV	Finds the specified string, which may be characters in single or double quotes or a hexadecimal string in the format X'xxxx..xxxx'. NEXT is assumed if PREV, FIRST, and LAST are omitted.
MAP or MAP <i>map-name</i>	Switches to a display mapped with field names. If the area has been shown mapped before, the MAP command by itself suffices, because the map name is remembered. To map a previously unmapped area or to map it with a different map, specify the required map name as an operand of the command. Use the Maps action bar option to display a list of available maps.
RFIND	Repeats the last FIND command issued.
SOURCE or ROLL	Switches to a Source display if source support is available.
-xxxxxxx	Adjusts the start offset of the Core display by subtracting the hexadecimal offset xxxxxxx from the current start offset.

Miscellaneous Commands

Command	Description
<i>address</i>	Displays the screen for an address. While ZOOMing is the preferred method of switching from one address to another, you can also enter any valid hexadecimal address (without leading zeros) on the command line.
<i>control-block-name</i>	Displays all CICS, DL/1, and DB2 control blocks by typing their short name as a command. A full list of these short names can be found in "Captured Control Blocks (CICS)" on page 38 and "Captured Control Blocks (MVS Only)" on page 40 .
HELP	Displays online help information for any type of display.
PFSHOW or KEYS	Displays a pop-up screen that lets individual users customize the commands assigned to the 24 PF keys to satisfy their own requirements. The changes are saved permanently in the user's profile record in the SmartQuest Profile file.
<i>program-name</i>	Displays any program in the program calling chain by typing the program name as a command. Source is shown if source-level support is available, otherwise it is shown in disassembled format.
RETRIEVE	Recalls to the command line the last 20 commands entered in sequence. When the required command displays, you can press Enter to perform the command.
<i>Rnn</i>	Displays the storage at the address contained in register <i>nn</i> (where <i>nn</i> is in the range 0 through 15). Depending on the type of storage and the availability of source-level support, the display is source, disassembly, mapped, or core.
<i>Rnn+xxx</i>	Resembles the <i>Rnn</i> command except the hexadecimal offset <i>xxx</i> (in the range 0-FFF) is added to the register address to calculate the address to display.

PF Key Summary

The PF keys for this product can be customized globally or by an individual user. Customized PF key settings are saved permanently on the SmartQuest Profile file. The default PF key settings, as supplied with the product, are listed below.

Key	Description
PF1	HELP
PF2	Unassigned
PF3	END
PF4	ROLL (Used to roll from a Source display to a Disassembly display, then to a Core display and back to source)
PF5	RFIND
PF6	Unassigned
PF7	UP
PF8	DOWN
PF9	SWAP
PF10	LEFT
PF11	RIGHT
PF12	RETRIEVE
PF13	HELP
PF14	RESUME
PF15	END
PF16	ROLL
PF17	RFIND
PF18	DEQ
PF19	UP
PF20	DOWN

Key	Description
PF21	SWAP
PF22	LEFT
PF23	RIGHT
PF24	RETRIEVE

By default, the CLEAR key is used to exit the dump viewer. You can customize the product to make PA1 or PA2 the exit key instead of CLEAR. Otherwise PA1 and PA2 have no assigned function.

To locally modify the PF keys and save the modifications in your user profile record

- 1 Type PFSHOW to display the User PF Key Customization screen shown in [Figure 67](#).

Figure 67 • User PF Key Customization Screen

```

ASG-SmartQuest 7.0.0 ISO
File Filter List Details Labels Maps Toggles Help
Command ==> pfsHOW
UIEU 1-----
          *----- User PF Key Customization -----*
          PF1 HELP          PF13 HELP          *****
          PF2              PF14 RESUME         *****
          PF3 END           PF15 EXIT          ***
          PF4 ROLL          PF16 ROLL          ***
          PF5 RFIND          PF17 RFIND          ***
          PF6 DETAILS       PF18 DEQ           **
          * PF7 UP           PF19 UP            *
          ** PF8 DOWN        PF20 DOWN          *
          *** PF9 SWAP        PF21 SWAP          *
          **** PF10 LEFT      PF22 LEFT          *
          ***** PF11 RIGHT  PF23 RIGHT         *
          PF12 RETRIEVE      PF24 RETRIEVE
          Co *----- PF3=End -----*
          A proprietary product of ASG, Inc. Use restricted to authorized licensees.
          Visit the ASG Support Web Site at www.asg.com

          --- CLEAR=Exit -----
          Change user PF keys as required
    
```

- 2 Modify the commands for each PF key name as required and press Enter. The changes take effect immediately.

Note:

See the *ASG-SmartQuest Installation Guide* for information about globally customizing the PF keys.

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