



**SERENA<sup>®</sup>**  
**StarTool<sup>®</sup> DA 5.7.2**

**CICS User's Guide**

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# Welcome to Serena StarTool DA CICS

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**Product Description** Thank you for choosing Serena® StarTool® DA (Dump Analyzer), the intelligent dump analysis and debugging tool for IBM z/OS mainframes. StarTool DA helps mainframe software engineers diagnose the causes of **abnormal end**-of-job (ABEND) conditions. The product provides automated dump diagnostics, interactive call tracing support, dump archiving and maintenance, and a full-featured debugging interface.

## **Batch, CICS, DB2, and IMS**

StarTool DA supports analysis and debugging of both batch and CICS ABENDs. Optional debugging support for IBM DB2 and IMS database ABENDs is also available.

## **ChangeMan ZMF**

Users of Serena® ChangeMan® ZMF may optionally integrate their software change management system with the debugging support of StarTool DA using StarTool DA's ZMF Integration Option.

**StarTool DA CICS Description** StarTool DA CICS is an optional feature of StarTool DA that provides dump management and diagnosis support for CICS application ABENDs. All dumps normally requested by CICS are supported.

**Document Objectives** The *StarTool DA CICS User's Guide* manual provides information about using the interactive debugging features of StarTool DA CICS to assist with the diagnosis and resolution of mainframe CICS program ABENDs.

**Audience** This information is intended for mainframe programmers who use StarTool DA as an ABEND debugging tool. Familiarity with IBM mainframe computer systems and IBM mainframe COBOL and assembly language programming is assumed.

## **Before You Begin**

See the Readme for the latest updates and corrections for this manual. You can download the latest version of the Readme from the [Serena support website](#).

## **Conventions**

**Terminological** The following terminological and style conventions are used throughout this document:

- z/OS™ represents the z/OS and OS/390® IBM® operating systems.
- StarTool DA Batch also is referred to as CICS Dump Analyzer or DA CICS.
- Examples may show either StarTool DA or ChangeMan ZMF-DA in screen and print titles. The product name in the title indicates whether the StarTool DA installation is configured to integrate with ChangeMan ZMF, and both types of installations were used in the preparation of examples for this manual.

Typographical The following typographical conventions are used in the online manuals and online help. These typographical conventions are used to assist you when using the documentation; they are not meant to contradict or change any standard use of typographical conventions in the various product components or the host operating system.

Convention	Explanation
<i>italics</i>	Introduces new terms that you may not be familiar with and occasionally indicates emphasis.
<b>bold</b>	Emphasizes important information and field names.
UPPERCASE	Indicates keys or key combinations that you can use. For example, press the ENTER key.
monospace	Indicates syntax examples, values that you specify, or results that you receive.
monospaced <i>italics</i>	Indicates names that are placeholders for values you specify; for example, filename.
vertical rule	Separates menus and their associated commands. For example, select File   Copy means to select Copy from the File menu. Also, indicates mutually exclusive choices in a command syntax line.

## Documentation

StarTool DA publications include the Readme file and the following:

Title	Description
<i>Serena<sup>®</sup> SER10TY User's Guide</i>	Installation information for SER10TY licensing software and instructions on how to apply license key SERTificates.
<i>Serena<sup>®</sup> StarTool<sup>®</sup> DA Batch User's Guide</i>	Concepts, features, and functions of StarTool DA Batch, which provides dump analysis and ABEND recovery assistance in a batch environment.
<i>Serena<sup>®</sup> StarTool<sup>®</sup> DA CICS User's Guide</i>	Concepts, features, and functions of StarTool DA CICS, which provides dump analysis and ABEND recovery assistance in a CICS environment.
<i>Serena<sup>®</sup> StarTool<sup>®</sup> DA Messages</i>	A consolidated message reference for all product options, with error recovery recommendations.
<i>Serena<sup>®</sup> StarTool<sup>®</sup> DA Installation and Setup</i>	A guide on how to install and configure StarTool DA Batch and StarTool DA CICS.
<i>Serena<sup>®</sup> StarTool<sup>®</sup> DA Batch Training Guide</i>	A quick-start guide to StarTool DA Batch basic features and functions.
<i>Serena<sup>®</sup> StarTool<sup>®</sup> DA CICS Training Guide</i>	A quick-start guide to StarTool DA CICS basic features and functions.

## Accessing the Documentation

The *StarTool DA Installation and Setup* manual and the *Serena SER10TY User's Guide* are shipped with the product as printed manuals and are included on the product media. In

addition, the full documentation suite is provided in electronic form on the Serena Support website.

You may copy the electronic documentation to an intranet server for internal use, subject to the terms of the Master License and Services Agreement (MLSA).

### Accessing Documentation Online

All product documentation is available for download to licensed customers on the Serena Customer Support website at <http://support.serena.com>. A user ID and password are required to log on to the website.

- 1 After logging onto the site, click on the **My Downloads** tab.
- 2 From the list of products in the **Please Select Product** drop-down menu, select StarTool DA.
- 3 In the download list, find the desired version of StarTool DA, then click the **Download Documentation** link for that version.  
A page displays a list of available documentation for the selected release.
- 4 Click the **Download** link for the document you want to download.

### Using the PDF Documentation

To view PDF files, use Adobe® Reader®, which is freely available from [www.adobe.com](http://www.adobe.com).



**TIP** Be sure to download the *full version* of Reader. The more basic version does not include the search feature.

This section highlights some of the main Reader features. For more detailed information, see the Adobe Reader online help system.

The PDF manuals include the following features:

- **Bookmarks.** All of the manuals contain predefined bookmarks that make it easy for you to quickly jump to a specific topic. By default, the bookmarks appear to the left of each online manual.
- **Links.** Cross-reference links within a manual enable you to jump to other sections within the manual and to other manuals with a single mouse click. These links appear in blue.
- **Printing.** While viewing a manual, you can print the current page, a range of pages, or the entire manual.
- **Comments.** All PDF documentation files that Serena delivers with ChangeMan ZMF have enabled commenting with Adobe Reader. Adobe Reader version 7 and higher has commenting features that enable you to post comments to and modify the contents of PDF documents. You access these features through the Comments item on the menu bar of the Adobe Reader.
- **Advanced search.** Starting with version 6, Adobe Reader includes an advanced search feature that enables you to search across multiple PDF files in a specified directory. (This is in addition to using any search index created by Adobe Catalog—see step 3 below.)

To search within multiple PDF documents at once, perform the following steps (requires Adobe Reader version 6 or higher):

- 1** In Adobe Reader, select **Edit > Search** (or press **CTRL+F**).
- 2** In the text box, enter the word or phrase for which you want to search.
- 3** Select the **All PDF Documents in** option, and browse to select the folder in which you want to search.
- 4** Optionally, select one or more of the additional search options, such as **Whole words only** and **Case-Sensitive**.
- 5** Click the **Search** button.



**NOTE** Optionally, you can click the **Use Advanced Search Options** link near the lower right corner of the application window to enable additional, more powerful search options. (If this link says **Use Basic Search Options** instead, the advanced options are already enabled.) For details, see Adobe Reader's online help.

# Chapter 1

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## Screens and Functionality

The following sections contain general information on how to use the screens, such as function key assignments:

- ["Common Features for Screens" on page 12](#)
- ["Function Key Definitions Screen" on page 12](#)
- ["PF Key Command Assignments" on page 13](#)
- ["Commands" on page 13](#)
- ["Navigating the Screens" on page 18](#)
- ["Summary of Screens by Transaction ID" on page 19](#)

## Common Features for Screens

Common features for all StarTool DA CICS screens include:

- A date, screen title, time, command line, and scroll field.
- Movement through the fields is cursor driven; arrow keys move the cursor from field to field.
- Type StarTool DA CICS commands on the command line. You can also assign these commands to function keys (and change the assignments) using the Function Key Definitions Screen. For a list of these commands and a description of their functions, see [Commands](#).

## Function Key Definitions Screen

From this screen you can view, change, or delete any of the currently defined PF Keys. You can access the Function Key Definitions Screen from any StarTool DA CICS screen. To do so, position the cursor anywhere on the function key line at the bottom of the current screen and press **Enter**.

StarTool DA CICS retains the function key definitions by CICS User ID, if available. If the User ID is not available, then StarTool DA CICS uses the CICS Terminal ID. This lets you tailor StarTool DA CICS to suit your needs. If no changes are made to the PF key definitions, then each key has the same functionality across the entire system.

When you finish with your task, type **END** or press the associated **PF** key to return to the invoking screen.

```

Date: 06/10/2011   DA-CICS - Function Key Definitions(90)   Time: 11:58:41
Command:

-- PFK Command Assignments --- ----- Valid Commands -----
PF1 = HELP          PF13=          HELP - Screen help      DL   - Define Label
PF2 = GETSRC        PF14=          END  - Exit menu        L   - Go To Label
PF3 = END           PF15=          ECB  - Expand/Collapse   LO  - Locate Offset
PF4 = DEL           PF16=          FIND - Find Text         LR  - Locate Regs
PF5 = KEEP          PF17=          RFIND - Find same text  DSO - Display Stg
PF6 = PRINT         PF18=          DOWN - Scroll Down       Ownership
PF7 = UP            PF19=          UP   - Scroll Up          GetSrc - Get ChangeMan
PF8 = DOWN          PF20=          LEFT - Scroll Left      listing
PF9 =               PF21=          RIGHT - Scroll Right
PF10=              PF22=          LA   - Locate Address
PF11=              PF23=          LCB  - Locate Block
PF12=              PF24=          DEL  - Delete a Dump
                   KEEP  - Change Retention
                   PRINT - Print a Dump
                   FMT  - Format a Block
                   SRC  - Display Source
                   DAS  - Dis-Assemble
                   SWAP - Change Screen

PF1(HELP) PF3(END)
(c) Copyright 1994-2011 by SERENA Software, Inc.

```

# PF Key Command Assignments

Modify assignments by typing any valid command in the field associated with the PF key. If an assignment already exists, type over the previous command. To delete an assignment, type spaces over it.

## Commands

The StarTool DA CICS system includes a series of commands to help you on each of the StarTool DA CICS screens. It is not necessary to use commands for transaction dumps because a menu allows you to navigate to important information. However, by using these commands, advanced users can manipulate the data on the screen, find information in a dump, get help with problems, move back and forth between the various StarTool DA CICS screens (both COBOL source and storage areas) and specify dump distribution options.

Each screen in the StarTool DA CICS system has a command line on which you enter the command for execution; however, not all commands are executable from all screens. Only if the command function is applicable to the processing occurring in the screen is that command executable from that screen. The commands applicable to any screen are noted when that screen and its functionality are described. Any command can also be executed with a PF key. For information about defining PF keys, see [Function Key Definitions Screen](#).

## List of Commands

COMMAND	DESCRIPTION
@	Locates any hexadecimal address. Type @ on the command line followed by the hex address. If you want concatenations of implied commands, separate each by a plus (+) sign. Similar to LA command (LA is used for PF key commands; @xxxx for addresses). Press Enter to execute the command.
#	Locates any offset within a control block. Type # on the command line followed by the offset. If you want concatenations of implied commands, separate each by a plus (+) sign. Similar to LO command (LO is used for PF key commands; #xxxx for offsets). Press Enter to execute the command.
%	Loads the contents of this register and locates this address. Enter % on the command line followed by the register (0 through 15). If you want concatenations of implied commands, separate each by a plus (+) sign. Similar to LR command (LR is used for PF key commands for register operations only; %n for concatenations with offsets). Press Enter to execute the command.
DAS or DISASM	Disassembles hexadecimal dump data where the cursor is positioned. If the cursor is not positioned on valid hexadecimal data, the command is ignored. To execute this command, type DAS or DISASM on the command line; then position the cursor and press Enter. DAS or DISASM can be assigned to a PF key.
DEL	Deletes a dump from the database. Type DEL on the command line, position the cursor to the dump and press Enter. Or, if DEL is assigned to a PF key, position the cursor to the dump and press the PF key.

COMMAND	DESCRIPTION
DL	Defines a label to a screen. Type DL on the command line followed by a "blank" and a 1- to 8-character label name. Press Enter to execute the command. If DL is assigned to a PF key, enter the label name starting in the first position of the command line and press the PF key. To display a screen that was previously labeled, type L (go to label command) followed by a blank and the label name.
DOWN	Scrolls the screen down. Type DOWN on the command line, and press Enter. DOWN may be assigned to a PF key (usually PF8).
DSO/ WHOSE/ WHOHAS	Displays the Display Storage Ownership panel for SVC and system dumps only. Aliases are WHOSE and WHOHAS. Identifies the owner of the requested storage above and below a specific address.
ECB	<p>Expand and Collapse Branch. Some of the StarTool DA CICS screens are menus that display a table of contents describing the options available for that screen. Each entry in the Table of Contents may or may not have additional options available. When the table of contents first displays, only the highest level of options displays.</p> <ul style="list-style-type: none"> <li>■ If an entry contains lower level options, it is preceded by a (+) sign. A (-) sign preceding the entry indicates that you displayed all lower-level options.</li> <li>■ Enter the command ECB in the command line, select a plus sign (+) to display all the lower level options for the menu entry and press Enter. Each of the lower level options displays.</li> <li>■ To compress the lower level options, enter the command ECB in the command line, select the (-) by positioning the cursor and press Enter.</li> <li>■ If ECB is assigned to a PF key, then select a (+) or (-), and press the PF key.</li> </ul>
END	Exits the current screen and returns to the invoking screen. This command is functional in all StarTool DA CICS screens. Type END on the command line, and then press Enter to execute. END can be assigned to a PF key.
FIND	<p>Finds any entered string of character or numeric text. The length of the search text is as many characters as can fill the command line.</p> <ul style="list-style-type: none"> <li>■ The FIND command searches forward from the current position in the dump to the end of the current section of the dump (use the SEARCH command to scan the entire dump for a character string). StarTool DA CICS automatically displays control block titles when displaying a control block in the dump.</li> <li>■ To use the FIND command, type FIND (or F) on the command line, followed by a space, and then the character or numeric string. If you include spaces in the search text, enclose the string in quotes. After entering the text, press Enter to initiate the search.</li> <li>■ If FIND is assigned to a PF key, type in the search text starting in the first position of the command line, and press the PF key.</li> <li>■ Once StarTool DA CICS finds the string, it positions the dump so that the string is on the first line of the screen.</li> <li>■ After the FIND command executes, the character or numeric text is erased from the command line but saved by StarTool DA CICS.</li> </ul>

COMMAND	DESCRIPTION
FMT	<p>Displays the control block DSECT statements and matches the data to the field to display a comprehensive list of fields with their contents. When this command is issued, StarTool DA CICS locates the corresponding source statements for the currently viewed control block and displays it on the screen at the location on the screen containing the cursor. If the cursor is not positioned on a valid hexadecimal character on the screen, the command is ignored. Press Enter to execute the command. You can assign FMT to a PF key.</p> <p>You can also use the FMT command when viewing the Trace Table to format the trace table into an application-oriented and user-friendly list of traces.</p>
GETSRC	<p>Extract the ChangeMan Source Listing and use it to update the Language Database.</p> <p>See <a href="#">"Extracting ChangeMan Source Listings" on page 90</a> for more information.</p>
HELP	<p>Provides help information for the current screen. Type HELP on the command line, and press Enter to execute. You can assign HELP to a PF key. Effective in all screens.</p> <ul style="list-style-type: none"> <li>■ You can get help for any other screen other than the one you are on by typing HELP S.## on the command line, where ## is the StarTool DA CICS screen number.</li> <li>■ You can get help for commands by typing HELP C.<i>command</i> on the command line, where <i>command</i> is any StarTool DA CICS command. For a list of all commands, type: HELP C.LIST.</li> <li>■ Help is available for specific screen fields; however, to get help for SCROLL or for the command line, type HELP F.<i>field</i> on the command, where <i>field</i> is SCROLL or COMMAND.</li> </ul>
KEEP +nnn -nnn	<p>Modifies the retention period for a dump on the database for a specified number of days (up to 999). For example:</p> <ul style="list-style-type: none"> <li>■ If you want to increase the retention period by 30 days, type KEEP +30 on the command line. The number is added to the retention period.</li> <li>■ If you want to decrease the retention period by 10 days, type KEEP -10 on the command line. The number is subtracted from the retention period.</li> </ul> <p>To execute, type KEEP and + or - nnn on the command line, position the cursor on the dump, and press Enter. If KEEP is assigned to a PF key, then type + or - on the command line, position the cursor to the dump, and press the PF key.</p>
L	<p>Displays the screen identified by the label entered after the command. Type L on the command line followed by a space and a 1- to 8-character label name, then press Enter to execute the command. If L is assigned to a PF key, type the label name starting in the first position of the command line and press the PF key.</p>
LA	<p>Locates any hexadecimal address. Type LA on the command line followed by a space and the hex address, and press Enter to execute the command. If LA is assigned to a PF key, type the address starting in the first position of the command line and press the PF key. Similar to @.</p>
LO	<p>Locates any offset within a control block. Type LO in the command line followed by a space and the offset, and press Enter to execute the command. If LO is assigned to a PF key, type the offset starting in the first position of the command line and press the PF key. Similar to #.</p>
LR	<p>Loads the contents of this register and locates this address. Type LR in the command line followed by a space and the register (0 through 15) you want to load and locate. Press Enter to execute the command. If LR is assigned to a PF key, type the register starting in the first position of the command line and press the PF key. Similar to%.</p>

COMMAND	DESCRIPTION		
LCB	<p data-bbox="483 207 1453 352">Locates any of the following control blocks using the standard control block name, as listed. Type LCB in the command line followed by a space and the control block name; then press Enter to execute the command. If LCB is assigned to a PF key, type the control block name starting in the first position of the command line and press the PF key.</p> <table border="0" data-bbox="483 369 1453 1314"> <tr> <td data-bbox="483 369 954 1314"> ACB – access control block  ATT – program check/abend table  CCE – console control element  CRB – cross-region block  CSA – common system area  CSAOPFL – csa optional feature list  DCTTE – dct entry  DCA – dispatch control area  EIS – exec interface storage  FCTSR – VSAM shared-resources control block  FCTTE –fct entry  ICE – interval control element  JCTTE – jctte entry  JCA – journal control area  JCT – journal control table  LLA – load list area  LCB – logon control block  NIB – nib descriptor  OPFL – optional features list  PAM – page allocation map  PPT – processing program table  PCT – program control table  QEA – queue element area  RPL – request parameter list  SIP – sip communications area  SNTE – pseudo sign-on table entry  SRA – srb interface control area  SCACB – subsystem connection address control block </td> <td data-bbox="967 369 1453 1314"> SCCB – subsystem connection control block  SLCB – subsystem logon control block  SUDB – subsystem user definition block  SIT – system initialization table  TCA – task control area  SYSTCA – task control area - system area  TCTTESY – tct system entry  TCTTE – tct terminal entry  TCTTEX – tct terminal entry extension  TSACA – temporary storage AUX control area  TSBCA – temporary storage buffer control area  TSBM – temporary storage byte map  TSRE – temporary storage request element block  TST – temporary storage unit table  TSVCA – temporary storage vswa  TCT – terminal control table  TCTUA – terminal control tbl user area  TIOA – terminal i/o area  TRT – trace table  TDCI – transient data ci state map - mrsd  TDST – transient data static storage  UET – user exit table </td> </tr> </table>	ACB – access control block ATT – program check/abend table CCE – console control element CRB – cross-region block CSA – common system area CSAOPFL – csa optional feature list DCTTE – dct entry DCA – dispatch control area EIS – exec interface storage FCTSR – VSAM shared-resources control block FCTTE –fct entry ICE – interval control element JCTTE – jctte entry JCA – journal control area JCT – journal control table LLA – load list area LCB – logon control block NIB – nib descriptor OPFL – optional features list PAM – page allocation map PPT – processing program table PCT – program control table QEA – queue element area RPL – request parameter list SIP – sip communications area SNTE – pseudo sign-on table entry SRA – srb interface control area SCACB – subsystem connection address control block	SCCB – subsystem connection control block SLCB – subsystem logon control block SUDB – subsystem user definition block SIT – system initialization table TCA – task control area SYSTCA – task control area - system area TCTTESY – tct system entry TCTTE – tct terminal entry TCTTEX – tct terminal entry extension TSACA – temporary storage AUX control area TSBCA – temporary storage buffer control area TSBM – temporary storage byte map TSRE – temporary storage request element block TST – temporary storage unit table TSVCA – temporary storage vswa TCT – terminal control table TCTUA – terminal control tbl user area TIOA – terminal i/o area TRT – trace table TDCI – transient data ci state map - mrsd TDST – transient data static storage UET – user exit table
ACB – access control block ATT – program check/abend table CCE – console control element CRB – cross-region block CSA – common system area CSAOPFL – csa optional feature list DCTTE – dct entry DCA – dispatch control area EIS – exec interface storage FCTSR – VSAM shared-resources control block FCTTE –fct entry ICE – interval control element JCTTE – jctte entry JCA – journal control area JCT – journal control table LLA – load list area LCB – logon control block NIB – nib descriptor OPFL – optional features list PAM – page allocation map PPT – processing program table PCT – program control table QEA – queue element area RPL – request parameter list SIP – sip communications area SNTE – pseudo sign-on table entry SRA – srb interface control area SCACB – subsystem connection address control block	SCCB – subsystem connection control block SLCB – subsystem logon control block SUDB – subsystem user definition block SIT – system initialization table TCA – task control area SYSTCA – task control area - system area TCTTESY – tct system entry TCTTE – tct terminal entry TCTTEX – tct terminal entry extension TSACA – temporary storage AUX control area TSBCA – temporary storage buffer control area TSBM – temporary storage byte map TSRE – temporary storage request element block TST – temporary storage unit table TSVCA – temporary storage vswa TCT – terminal control table TCTUA – terminal control tbl user area TIOA – terminal i/o area TRT – trace table TDCI – transient data ci state map - mrsd TDST – transient data static storage UET – user exit table		
LEFT	<p data-bbox="483 1335 1453 1419">Scrolls the screen to the left. Type LEFT on the command line and press Enter. You can assign LEFT to a PF key. LEFT also works with the disassembler to start disassembling 2 bytes (left) before the current cursor position.</p>		

COMMAND	DESCRIPTION
PRINT	<p>Prints a hard copy of a dump. Type PRINT on the command line, position the cursor to the dump, and press Enter. If PRINT is assigned to a PF key, position the cursor to the dump and press the PF key.</p> <ul style="list-style-type: none"> <li>■ You can also use the PRINT command by typing S in front of each dump you want to print, and then typing PRINT on the command line and pressing Enter (or pressing the appropriate PF key).</li> <li>■ To print sections of a dump, you must be in Screens 50 or 51 and select the sections you want to print by typing S in front of each section name. After typing S on all rows you want to print, press Enter and then issue the print command on the command line.</li> <li>■ Printing normally occurs as a started task. To print as a job, use the parameter <i>M=member</i>, where <i>member</i> is a member of the StarTool DA CICS JCLLIB containing a JOB card.</li> <li>■ You can specify SYSOUT parameters by typing the OUT= parameter followed by overriding sysout JCL statements. The default JCL statement used for printing is //xxxx DD SYSOUT=&amp;OUT.</li> </ul>
RFIND	<p>Finds the last character or numeric text that was entered in the FIND command. Type RFIND on the command line and press Enter. You can assign RFIND to a PF key.</p>
RIGHT	<p>Scrolls the screen to the right. Type RIGHT on the command line and press Enter. You can assign RIGHT to a PF key. RIGHT also works with the disassembler to start disassembling two bytes to the (right) after the current cursor position.</p>
SRC	<p>Displays the program source statements. When you use this command, StarTool DA CICS locates the corresponding source statements for the currently viewed program and displays them on the screen where the cursor is positioned. If the cursor is not positioned on a valid hexadecimal character on the screen, the command is ignored. Press Enter to execute the command. You can assign SRC to a PF key.</p>
SEARCH	<p>Searches the entire dump for a character string. The SEARCH command searches forward from the current position in the dump. Type SEARCH on the command line followed by a space and then the character or numeric string for which StarTool DA CICS searches. If blanks are included in the search text, enclosed the string in quotes. Press Enter to initiate the search.</p> <ul style="list-style-type: none"> <li>■ If SEARCH is assigned to a PF key, type the search text starting in the first position of the command line, and then press the PF key.</li> <li>■ Once StarTool DA CICS finds the string, it positions the dump so that the string is on the first line of the screen.</li> <li>■ Once the SEARCH command executes, the character or numeric text is erased from the command line but saved by StarTool DA CICS.</li> </ul>
SWAP	<p>Causes StarTool DA CICS to switch the display of a hexadecimal screen from 132 columns to 80 columns, and vice-versa. Type SWAP on the command line with no other parameters, and press Enter to execute the command. You can assign SWAP to a PF key. The SWAP command also works with the disassembler to change the display from hex to decimal and vice-versa.</p>
UP	<p>Scrolls the screen up. Type UP on the command line, and press Enter. If UP is assigned to a PF key (usually PF7), press that PF key.</p>

## Navigating the Screens

The paragraphs that follow describe keyboard keys for moving between StarTool DA CICS screens.

### Clear Key

Use the **CLEAR** key for an express exit from any dump viewing screen.

### Returning to the Menu

To return to the invoking menu, type **End** in the command line and press **Enter**, or press **PF3**.

### Scroll Field

The Scroll field allows you to set a default value that is used with a scroll command you enter on the command line (UP, DOWN, LEFT, RIGHT), or execute with a **PF** key. The Scroll field is available on menus and formatted dump screens.

Use one of the following subparameters in the Scroll field, or specify the first character of the parameter.

Sub-parameter	Does this...
<u>P</u> age	When executed with a scroll command, Page repositions the dump text or table of contents menu by one full screen up or down, left or right; subject to the dimensions of the dump text.
<u>H</u> alf	Same as above, but only repositions a half screen.
<u>M</u> ax	When executed with a scroll command, Max repositions the dump text or table of contents menu to the maximum point of that scroll command. For example: <ul style="list-style-type: none"> <li>■ UP – Repositions to the top of the current dump section or TOC menu.</li> <li>■ DOWN – Repositions current dump section or TOC menu to the bottom.</li> <li>■ LEFT – Repositions to the first column of dump text data or TOC menu.</li> <li>■ RIGHT – Repositions to the last column of dump text data or TOC menu.</li> </ul>
<u>C</u> SR	When executed with a scroll command, repositions the dump text or TOC menu at the cursor location. For example: <ul style="list-style-type: none"> <li>■ UP – brings the line with the cursor to the bottom of the screen.</li> <li>■ DOWN – brings the line with the cursor to the top of the screen.</li> <li>■ RIGHT – brings the column with the cursor to the left-most position on the screen.</li> <li>■ LEFT – brings the column with the cursor to the right-most position of the screen.</li> </ul>
nnnn	<i>nnnn</i> represents a number from 1 to 9999. When executed with a scroll command, repositions 1 to 9999 lines or columns of text data or the TOC menu up, down, right or left.

You can add two other parameters to the scroll commands when they are executed using the command line or the PF key. These parameters are only valid with the scroll

commands within a screen that has a default scroll field. When you use these parameters with the scroll commands, they override the default scroll parameter only for the execution of that one command.

Parameter	Description
nnnn	A number from 1 to 9999.
max	Execute the scroll command to its maximum.

Examples of using these parameters with commands:

UP 9999	Repositions the lines of dump text up by 9,999 lines.
UP M	Repositions to the first line of the current dump section.
DOWN 999	Repositions the lines of dump text down by 999 lines.
DOWN M	Repositions to the last line of the current dump section.
LEFT 99	Repositions the columns of dump text by 99 columns.
LEFT M	Brings to the screen the first column of dump text.
RIGHT 9	Repositions the columns of dump text by 9 columns.
RIGHT M	Brings to the screen the last column of dump text.

## Summary of Screens by Transaction ID

The following table summarizes the screens by transaction ID

Transaction ID	Screen Number	Screen Name	
ES00	01	Dump Database Management	
	02	Database/CICS Job Definition	
	10	Dump Selection/Distribution	
	12	Dump Selection/Distribution	
	20	Duplicate Dump Definition	
	22	Duplicate Dump Definition	
	05	Database Storage Management	
	07	Database Storage Definition	
ESPY	30	Dump/Selection Display Screen	
	40	Dump Database Contents	
	55a	Master Menu	
	50	CICS Dump Contents Table (80 characters)	
	51	CICS Dump Contents Table (132 characters)	
	56	CICS Dump Control Blocks	
	57	Source Listing Management	

<b>Transaction ID</b>	<b>Screen Number</b>	<b>Screen Name</b>
ESPY	60	CICS Dump Text Display (80 characters)
	61	CICS Dump Text Display (132 characters)
	62	CICS Display Storage Ownership
	65	CICS Dump Display (80 characters - optionally divides a 132-character line into two 80-character lines)
	70	Disassembler Screen (80 characters)
	71	Disassembler Screen (132 characters)
	74	Format Control Block (80 characters)
	75	Format Control Block (132 characters)
	76a	Program Source (translated source, 80 characters)
	76b	Program Source (original source, 80 characters)
	77a	Program Source (132 characters)
	77b	Program Source (132 characters)
	78	Field Contents Display (80 characters)
	79	Field Contents Display (132 characters)
	81	Program Source Selection

## Chapter 2

---

# Using the Debug/Viewing Server

Use the Debug/Viewing Server (DVS) to view, analyze, print, or delete dumps that reside on any of the dump databases. The DVS also allows you to obtain the source listing from ChangeMan ZMF to update the language database.

To perform one of the preceding actions on a dump using the Debug/Viewing Server:

- 1** Initiate the Debug/Viewing Server by typing **ESPY on the blank CICS screen and pressing Enter.**

The Dump Selection/Display (30) screen displays. The Dump Selection/Display screen lists the available dump databases and itemizes the number of transaction abends, system abends, and storage violations on each database.

See ["Dump Selection/Display \(30\) Screen" on page 23](#) for information on the fields displayed on this screen.

- 2** Select a database by positioning the cursor on the appropriate database and pressing Enter.

**NOTE** You need to know which database contains your dump. In each system, one or more databases receive dumps based on specific criteria.

The Dump Database Contents (40) screen displays. The dumps are listed with identifying criteria such as abend code, transaction ID, terminal ID, date, time, program name, and retention period.

See ["Dump Database Contents \(40\) Screen" on page 24](#) for information on the fields displayed on this screen.

- 3** Choose from the following actions:
  - ["Selecting a Dump for Analysis" on page 22](#)
  - ["Deleting Dumps" on page 22](#)
  - ["Printing Dumps" on page 22](#)
  - ["Changing the Retention Period of a Dump" on page 23](#)
  - ["Extracting ChangeMan Source Listings" on page 90](#)

## Selecting a Dump for Analysis

On the Dump Database Contents (40) screen, select a dump and analyze its contents, position the cursor on the dump and press Enter.

- If you select a transaction dump, the Master Menu displays, which gives you options for investigating the transaction dump. See [Transaction Dumps](#).
- If you select a system dump, the CICS Dump Contents Table (50) displays. It itemizes all the pieces of information available in the formatted dump. See [System Dumps](#).

See "[Using the Debug/Viewing Server](#)" on page 21 for information on accessing the Dump Database Contents (40) screen.

## Deleting Dumps

On the Dump Database Contents (40) screen, delete dumps by performing one of the following actions:

- To delete one dump, type DEL on the command line, then position the cursor on the dump you want to delete and press Enter.

**NOTE** When you delete a dump, it is removed permanently from the database and cannot be retrieved.

If you assigned this command to a function key, position the cursor on the requested dump, and press the corresponding function key. All function key definitions are listed across the bottom of the screen.

- To delete more than one dump, type DEL on the command line, type S in the line command field for all the dumps to be deleted, and press Enter.

**NOTE** When you delete a dump, it is removed permanently from the database and cannot be retrieved.

See "[Using the Debug/Viewing Server](#)" on page 21 for information on accessing the Dump Database Contents (40) screen.

## Printing Dumps

On the Dump Database Contents (40) screen, print dumps by performing one of the following actions:

- To print a dump, type PRINT on the command line, position the cursor on the dump you want to print, and press Enter. Once printed, the dump remains on the database until the retention period expires or you manually delete it.
- To print more than one dump, type PRINT on the command line, type S in the line command field for all the dumps you want to print, and press Enter. Once printed, the dumps remain on the database until the retention period expires or you manually delete them.

If you assigned this command to a function key, position the cursor on the requested dump, and press the corresponding function key. All function key definitions are listed across the bottom of the screen.

See ["Using the Debug/Viewing Server" on page 21](#) for information on accessing the Dump Database Contents (40) screen.

## Changing the Retention Period of a Dump

On the Dump Database Contents (40) screen, change the retention period that StarTool DA CICS keeps the dump.

To change the retention period for a dump, type KEEP followed by a blank in the command line. Then:

- To increase the number of days, type *+NNN*, where *NNN* is a number from 1 to 9999.
- To decrease the number of days, type *-NNN*, where *NNN* is a number from 1 to 9999.

After typing the command, position the cursor on the selected dump and press Enter.

**NOTE** If you assigned this command to a function key, position the cursor on the requested dump, make modifications to the line, and press the corresponding function key. All function key definitions are listed across the bottom of the screen.

See ["Using the Debug/Viewing Server" on page 21](#) for information on accessing the Dump Database Contents (40) screen.

## Dump Selection/Display (30) Screen

The Dump Selection/Display screen lists the available dump databases and itemizes the number of transaction abends, system abends, and storage violations on each database.

On this screen, display the dumps in a database by selecting the database—position the cursor on the appropriate database and press Enter.

**TIP** You need to know which database contains your dump. In each system, one or more databases receive dumps based on specific criteria.





See ["Using the Debug/Viewing Server" on page 21](#) for information on accessing this screen.

## Chapter 3

# Transaction Dumps

The following topics describe how to view a transaction dump using the Debug/Viewing Server (DVS). The dump used in the examples is an ASRA abend in a COBOL program.

**NOTE** You cannot modify the dump viewing screens other than in the command line and scroll field.

When you select a transaction dump from the Dump Database Contents screen (see [Selecting a Dump for Analysis](#)), the Master Menu displays.

```
Date: 06/10/2011          DA-CICS          - Master Menu(55)          Time: 12:14:20
Command:
          TRAN: ESCO  CODE: ASRA (S0C7)  PROGRAM: ESPUSACO  OFFSET: 0037EA

1> Screen At Time Of Interrupt          6> Dump Table Of Contents
2> Dump Diagnostic Data                7> Source Listing Management
3> Trace Table                          8> DB2/SQL Data
4> CICS Program Call Summary           9> IMS/DLI Data
5> Control Blocks                       10> ChangeMan ZMF data

PF1(HELP) PF3(END)
(c) Copyright 1994-2011 by SERENA Software, Inc.
```

Use these options to analyze transaction abends.

<a href="#">Screen at Time of Interrupt</a>	The actual 3270 image at the time of interrupt.
<a href="#">Dump Diagnostic Data</a>	All the information you need to solve a transaction abend: Program Status Word (PSW), offset, offending COBOL instruction (for an ASRA), content of data fields for the instruction, and last events trace data.
<a href="#">Trace Table</a>	The unformatted, formatted, and abbreviated traces.
<a href="#">CICS Program Call Summary</a>	Summary of the CICS program calls for the current transaction.
<a href="#">Control Blocks</a>	Table of contents of CICS control blocks that you can map out with automatic DSECTS.

<a href="#">Dump Table of Contents</a>	A list of all the sections of the dump with a +/- expandable format.
<a href="#">Source Listing Management</a>	The capability to maintain source.
<a href="#">DB2 Option</a>	Access to DB2 diagnostic information. This is a separately licensed option.
<a href="#">IMS Option</a>	Access to IMS diagnostic information. This is a separately licensed option.
<a href="#">ChangeMan ZMF Option</a>	Access to ChangeMan ZMF information. This is applicable if the abending program was under ChangeMan ZMF control.

## Screen at Time of Interrupt

Option 1 provides the 3270 image at time of interrupt. It allows you to see what was going on right before an abend and to verify the screen data input to the transaction. Having this information available often pinpoints any editing or ASRA (OC7) problems.

In this screen, entry of transaction code *esra* caused an ASRA (*ESCO* is a demo transaction that was programmed to purposely cause an ASRA).

```
Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:15:53
Command:
Terminal Screen At The Time Of Interrupt
escoAOST 001I,DA-CICS      ES35 startup scheduled.
```

```
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2011 by SERENA Software, Inc.
```

## Dump Diagnostic Data

When you select Option 2 from the Master Menu, several screens of dump diagnostic data display. The first screen displays the Problem Summary Section, which includes the

problem summary, abend description, failing statement, and information for the first and second operand.



**NOTE** Source line number is displayed for the failing statement only when program sequence numbers are present in the program listing.

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:17:1
Command:                                                Scroll: PAG
Dump Diagnostic Data
----- Problem Summary Section -----

Problem Summary : Interrupt code 007 in program ESPUSACO at offset 0037EA.
                  Compiled : 05/05/2011 at 04:05:12 Language : Cobol/zOS
                  Loaded From : STRDEV.DA.ES35.LDCLIB

Description      : Interrupt code 007 (CICS ASRA abend) is a data exception.
                  This exception results from an attempt to execute decimal
                  instructions while using non-decimal data.

Failing Program Statement (Source line #           , Compile line # 002394) :

===>                move ws-badfield to ws-goodfield                                C002

Operand 1 Summary   :
  Name               : WS-GOODFIELD
  Contents           : X'00000C' / C'...'
  Address/Length    : Hex 18B0C888 / Hex 0003 , Decimal 00003

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

To display the next screen, press PF8. It shows information for the second operand, and the beginning of the COBOL Internal Data Section.

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:17:49
Command:                                               Scroll: PAGE
Dump Diagnostic Data
  Defining Statement (Source line #           , Compile line # 000127) :

====>  77  WS-GOODFIELD                               PIC S9(5) COMP-3 VALUE 0.

Operand 2 Summary   : =====> Data contains an invalid sign in the last <=====
                    :                               digit. Valid sign values are C, D, or F.
                    Name                           : WS-BADFIELD
                    Contents                         : X'C2C1C4' / C'BAD'
                    Address/Length                   : Hex 18B0C890 / Hex 0003 , Decimal 00003

                    Defining Statement (Source line #           , Compile line # 000129) :

====>  77  WS-BADFIELD

----- Cobol Internal Data Section -----

COBOL calling chain summary (starting with the most recent program) :
  (Cursor-select the program name to display its source)

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2011 by SERENA Software, Inc.

```

Use the point-and-shoot feature to go to the dump storage for any hexadecimal address displayed on the screen by positioning the cursor on the first byte of the address. Then press **Enter**. For example, in the previous screen, to go to the dump storage for Operand 2, place the cursor on the first byte of hex address 018B0C890 and press **Enter**. The dump storage displays .

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(65)   Time: 12:19:50
Command:                                               Scroll: PAGE
Transaction Storage-user31 - Address 18b0c780 To 18b1162f Length 00004eb0
00000100  E8404040 40404040 00000C40 40404040  *Y      ...  * 18B0C880
          C2C1C440 40404040 1140C1C5 E2C3D6C1  *BAD    . AESCOA*
00000120  D6E2E340 40404040 00000050 40404040  *OST    ....  * 18B0C8A0
          03204040 40404040 40404040 40404040  *..     *
00000140  40404040 40404040 40404040 40404040  *      * 18B0C8C0
          40404040 40404040 40404040 40404040  *      *
00000160  Lines - Same As Above                               18B0C8E0

00000440  40404040 40404040 40404040 40404040  *      * 18B0CBC0
          40400000 00000000 C4C2F261 E2D8D340  * .....DB2/SQL *
00000460  86818993 A499856B 40998586 85998595  *failure, referen* 18B0CBE0
          838540C4 C440C3C5 C5D4E2C7 40869699  *ce DD CEEMSG for*
00000480  408485A3 818993A2 4BC1C4C2 C9F0F0F1  * details.ADBI001* 18B0CC00
          C5E2D7E8 C4F2D7D3 C2C8C9E3 C5C6C940  *ESPYD2PLBHITEFI *
000004A0  D9E2E8E8 00000BF0 C9000000 00E4C3D5  *RSYY...0I...UCN* 18B0CC20
          C2C2C8C9 E3C5C6C9 40C2C8C9 E3C5C6C9  *BBHITEFI BHITEFI*
000004C0  400C0000 01D54040 40404040 40404040  * ....N      * 18B0CC40
          40404040 40400000 F14040C4 C5404040  * ..1 DE      *

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
6014,Address: 18B0C890 located.

```

On the above screen, the 132-character lines are divided into two 80-character lines. To display all 132 characters on one line, press **PF9** (Swap); to scroll to the right, press **PF11** (Right).

Press **PF3** to return to the previous screen.

The next screen in the Dump Diagnostic Data series shows the Working-storage and Linkage-section BLW and BLL cell data.

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:23:13
Command:                                                Scroll: PAGE
Dump Diagnostic Data
St Id Program  Entry Pt Rtrn Adr TGT Addr DSA Addr CLLE Adr RunCom  Err-Data
01 00 ESPUSACO 983EC090 183EFB36 18B0A550 18B09360 18B0A470 18B0A198 00000000

Task Global Table (TGT) address = (Hex) 18B0A550

Working-storage base locator (BLW) cell summary :

      BLW cell   0 = (Hex) 18B0C840
      BLW cell   1 = (Hex) 18B0D840
      BLW cell   2 = (Hex) 18B0E840
      BLW cell   3 = (Hex) 18B0F840
      BLW cell   4 = (Hex) 18B10840
      BLW cell   5 = (Hex) 00000000
      --- Next   5 = Same as above

Linkage-section base locator (BLL) cell summary :

      BLL cell   0 = (Hex) 18B000D0 (EIB address)
      BLL cell   1 = (Hex) 00000000 (DFHCOMMAREA address)
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

The next screen in the Dump Diagnostic Data series shows the Assembler Data Section and various types of diagnostic data, such as the Program Status Word and register contents.

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:24:05
Command:                                                Scroll: PAGE
Dump Diagnostic Data
      --- Next   3 = Same as above

Local-storage base locator (BLK) cell summary :

      Cells are not available, cell count is zero , RS=X"AA/02/00/C0/80".

----- Assembler Data Section -----

Loc.: 183EF87A : F822 8048 8050 : ZAP   X'48'(3,R8),X'50'(3,R8)
OP(1) 18B0C888 : ..... : 00000C
OP(2) 18B0C890 : ..... : C2C1C4

----- Diagnostic Data Extracted From Dump -----

PSW                079D3000   983EF880   00060007   00000000
R0-7  00000000 183EC87B 18B0C7C0 18B0E840 183EF868 00000000 00000000 00000000
R8-15 18B0C840 18B0A550 183EC1CC 183EF3D8 183EC18C 18B09360 983EFB36 97D06748
EXECUTION KEY      9
The transaction was in Subspace mode
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

Use the point-and-shoot feature to go to the dump storage for the failing statement. The second address in the PSW contains this address (in bold in the above screen). Position the cursor on the first byte of this address (983EF880) and press **Enter**. The dump storage displays.

```

Date: 06/10/2011    DA-CICS          - CICS Dump Text Display(65)    Time: 12:46:59
Command:                                                    Scroll: PAGE
Program Storage - Address 183ec000 To 183fda5f Length 00011a60
00003880  D210D180 A3B84120 D1805020 D1789680 *K.J.t...J...J.o.* 183EF880
                D1784110 D17858F0 A0084100 915458C0 *J...J..0...j...*
000038A0  90800DEF 58C090E8 58209128 40F02008 *.....Y..j. 0..* 183EF8A0
                D20783D0 A4B695E8 80404770 B4F45820 *K.c.u.nY. ...4..*
000038C0  905C58F0 202C4110 A74B0DEF 95F4805D *.*.0....x...n4.)* 183EF8C0
                4780B59E D203D134 D1004120 B50A5020 *...K.J.J.....*
000038E0  D1005830 91344820 36B04920 A04258B0 *J...j.....* 183EF8E0
                C0384770 B08ED203 D100D134 41203790 *.....K.J.J.....*
00003900  5020D178 9680D178 4110D178 58F0A00C *..J.o.J...J..0..* 183EF900
                41009158 58C09080 0DEF58C0 90E85820 *..j.....Y..*
00003920  912840F0 20085840 357C8E40 00205D40 *j. 0... ..) * 183EF920
                C0004E50 D188F154 D178D18B 4E40D188 *..+.Jh1.J.J.+ Jh*
00003940  9110D17D D204D17D D18B58B0 C03C4780 *j.J'K.J'J'J.....* 183EF940
                B57E9601 D1814840 A0344E40 D188F950 *.=o.Ja. ..+ Jh9.*
00003960  D17CD18F 47B0B598 47F0BA48 47F0B59E *J.J....q.0...0..* 183EF960
                D20136B0 A04295E8 80404770 B5B45820 *K.....nY. ....*
00003980  905C58F0 202C4110 A7210DEF D207845A *.*.0....x...K.d.* 183EF980
                A4D695F4 805D4770 B5D2D206 8448A4EE *u0n4.)...KK.d.u.*

```

To return to the previous screen, press PF3.

The next screen in the Dump Diagnostic Data series shows the contains environment information for the transaction.

```

Date: 06/10/2011    DA-CICS          - CICS Dump Text Display(60)    Time: 12:24:36
Command:                                                    Scroll: PAGE
Dump Diagnostic Data
REGISTERS AT LAST EXEC COMMAND
R0-7 18B1A0EC 18B1A6B8 18B05FC0 18B1A6E4 18B04160 18B1A0D8 18B1A0EC 18B1A0E8
R8-15 18B1A0DC 18B1A6CA 00544758 00545757 18B08488 18B1A620 805449EE 00000000
Transaction environment for transaction_number(0001677)
transaction_id(ESCO)          orig_transaction_id(ESCO)
initial_program(ESPUSACO)    current_program(ESPUSACO)
facility_type(TERMINAL)      facility_name(CP31)          Start_code(TO)
netname(S02TCP31)           profile_name(ESPYPRF )
userid(CICSD227)            cmdsec(NO)                   ressec(NO)
spurge(NO)                  dtimeout(0000000)           tpurge(NO)
taskdatakey(USER)           taskdataloc(ANY)
twasize(00000)              twaaddr( )
remote(NO)                   dynamic(NO)
priority(001)                Tclass(NO)                   runaway_limit(0005000)
indoubt_wait(YES)           indoubt_wait_mins(000000)
indoubt_action(BACKOUT)     cics_uow_id(C7BB1A3B3EE13686) confdata(NO)
system_transaction(NO)       restart_count(00000)         restart(NO)

----- Last Command Trace Data -----
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

The screen shown below is the last Dump Diagnostic Data screen. It contains trace data for the transaction.

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:48:24
Command:
Dump Diagnostic Data                               Scroll: PAGE

*-----*
* Use the "FMT" command to format the trace data. *
*-----*

AP 00E1 EIP EXIT WRITEQ-TD OK                      REQ(00F4) FIELD-A(0000000
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-805449EE TIME-13:30
AP 00E1 EIP ENTRY WRITEQ-TD                       REQ(0004) FIELD-A(18B1DEA
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-805449EE TIME-13:30
AP 00E1 EIP EXIT WRITEQ-TD OK                      REQ(00F4) FIELD-A(0000000
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-805449EE TIME-13:30
AP 00E1 EIP ENTRY FREEMAIN                         REQ(0004) FIELD-A(18B0069
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-80543BF4 TIME-13:30
AP 00E1 EIP EXIT FREEMAIN OK                      REQ(00F4) FIELD-A(0000000
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-80543BF4 TIME-13:30
AP 00E1 EIP ENTRY WRITEQ-TD                       REQ(0004) FIELD-A(18B1A62
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-805449EE TIME-13:30
AP 00E1 EIP EXIT WRITEQ-TD OK                      REQ(00F4) FIELD-A(0000000
      TASK-01677 KE_NUM-0090 TCB-QR /008CA5D0 RET-805449EE TIME-13:30
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

Use the FMT command to format the trace data. The result is shown below.

```

Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:53:00
Command:
Dump Diagnostic Data                               Scroll: PAGE

005449EE EIP EXIT WRITEQ-TD OK =000001
005449EE EIP ENTRY WRITEQ-TD =000002
005449EE EIP EXIT WRITEQ-TD OK =000009
00543BF4 EIP ENTRY FREEMAIN =000010
00543BF4 EIP EXIT FREEMAIN OK =000013
005449EE EIP ENTRY WRITEQ-TD =000014
005449EE EIP EXIT WRITEQ-TD OK =000021
      ABAB ENTRY - FUNCTION(INQUIRE_ABEND_RECORD)

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

## COBOL Debugging Displays

There are two types of source code support within StarTool DA CICS:

- 1 Source Code: Compiler Input ([Source Code Support: Compiler Input](#)). This is the post-translated source code that is input to the COBOL compiler.
- 2 Original Source: Translator Input ([Original Source Code: Translator Input](#)). This is the untranslated original source code written by the programmer. This can be copy code or CICS commands or any other original COBOL source prior to being input to the CICS translator.

Access source code support from the Dump Diagnostic Data screens (Option 2).

### **Source Code Support: Compiler Input**

When you press PF4 (SRC) from any of the diagnostic screens, the Program Source (76a) screen displays.

**NOTE** To use the SRC facility, the program must have been compiled using the StarTool DA CICS Language Server.

```

Date: 06/10/2011      DA-CICS      - Program Source(76a)      Time: 13:07:25
Command:
-----
----- Prog:ESPUSACO Date:05/05/2011 Time:04:05:12 Lang:COBOL/zOS
P: 0037EA 0037EF 000319      move ws-badfield to ws-goodfield
000320      end-evaluate
*EXEC CICS RETURN END-EXEC
P: 0037F0 00381F 000321      Call 'DFHEI1' using by content x'0e0800000700001
-          '404040' end-call

000322      .
000323 MAIN-LOOP.
P: 003820 003825 000324      MOVE "ESPYD2PL" TO WS-SYSPLAN-NAME.
000325
P: 003826 00382D 000326      if Ws-IssueAuditMessages
P: 00382E 00383B 000327      display WS-PgmName ',018I,SQL # 02 : Issuing,
000328          'WS-SYSPLAN-NAME=' WS-SYSPLAN-NAME ' .'
000329      end-if
P: 00383C 003843 000330      if Ws-OptionValue not = '4'
000331*****      EXEC SQL
000332*****          SELECT
000333*****          CREATOR,
000334*****          VALIDATE,
PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP) +
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```

The failing instruction "move ws-badfield to ws-goodfield" displays first.

On the left side of the screen, a 1-character COBOL memory content designator displays:

- X Hexadecimal data
- F Fixed Decimal data (such as binary)
- P Procedure Division statement
- C Character Data

**Data Division Display**

To look at the individual field contents within a COBOL Procedure Division statement, place the cursor on the field and press Enter. The Data Division field displays with the hex contents to the left of the sequence number.

```

Date: 06/10/2011      DA-CICS      - Program Source(76a)      Time: 13:10:57
Command:
----- Prog:ESPUSACO Date:05/05/2011 Time:04:05:12 Lang:COBOL/zOS
X:      C2C1C4 000129 77  WS-BADFIELD
          000130      REDEFINES WS-BADFIELDC      PIC S9(5) COMP-3.
          000131 01  Ws-Option.
X:      1140C1C5 000132  03  Ws-Option-TranName      pic x(4).
C:      S 000133  03  filler      pic x(1).
C:      C 000134  03  Ws-OptionValue      pic x(1) value spa
C:      O 000135  03  filler      pic x(1).
C:      AOST 000136  03  Ws-OptionValue2      pic x(4) value spa
          000137  03  filler redefines
          000138      Ws-OptionValue2.
          000139      05 Ws-OptionValue2Bytes occurs 4 times.
C:      A 000140      07      pic x(1).
          000141  03  filler redefines
          000142      Ws-OptionValue2.
C:      A 000143      05 Ws-OptionValue2Lv1      pic x(1).
C:      OST 000144      05 filler      pic x(3).
          000145  03  filler redefines
          000146      Ws-OptionValue2.
C:      AO 000147      05 Ws-OptionValue2Lv2      pic x(2).
PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP) +
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```

## Field Contents Display

To view a storage dump relating to a particular data definition, on the Program Source screen, put the cursor on the Data Division line containing the field and press **Enter**. The Field Contents Display screen displays.

```

Date: 06/10/2011   DA-CICS       - Field Contents Display(78)   Time: 13:13:04
Command:                                                Scroll: PAGE
Field:WS-BADFIELD,Addr:18B0C890,Length:      3,Type:Packed
00000100  E8404040 40404040 00000C40 40404040  *Y      ...      *   18B0C880
          C2C1C440 40404040 1140C1C5  E2C3D6C1  *BAD    . AESCOA*
00000120  D6E2E340 40404040 00000050 40404040  *OST    ....      *   18B0C8A0
          03204040 40404040 40404040 40404040  *..      *
00000140  40404040 40404040 40404040 40404040  *        *   18B0C8C0
          40404040 40404040 40404040 40404040  *        *
00000160  Lines - Same As Above                                18B0C8E0

00000440  40404040 40404040 40404040 40404040  *        *   18B0CBC0
          40400000 00000000 C4C2F261 E2D8D340  * .....DB2/SQL *
00000460  86818993 A499856B 40998586 85998595  *failure, referen* 18B0CBE0
          838540C4 C440C3C5 C5D4E2C7 40869699  *ce DD CEEMSG for*
00000480  408485A3 818993A2 4BC1C4C2 C9F0F0F1  * details.ADBI001* 18B0CC00
          C5E2D7E8 C4F2D7D3 C2C8C9E3 C5C6C940  *ESPYD2PLBHITFI *
000004A0  D9E2E8E8 00000BF0 C9000000 00E4C3D5  *RSYY...0I...UCN* 18B0CC20
          C2C2C8C9 E3C5C6C9 40C2C8C9 E3C5C6C9  *BBHITFI BHITFI*
000004C0  400C0000 01D54040 40404040 40404040  * ....N      *   18B0CC40
          40404040 40400000 F14040C4 C5404040  * ..1 DE      *

Source: 000129 77 WS-BADFIELD
PF1(HELP) PF3(END) PF7(UP) PF8(DOWN)
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```

A 132-character line is divided into two 80-character lines. The first text line shows the field name, hex address, length, and data type of the field you selected. The second text line displays the COBOL data definition statement.

Press **PF3** to return to the Data Division screen.

**BL/BLL Cells and Field Displacements**

To view the contents of the BL or BLL cell registers and the field displacements while viewing the Data Division on the Program Source screen, press PF11 to scroll right.

```

Date: 03/15/2004   DA-CICS           - Program Source (76a)           Time: 13:40:53
Command:
----- Prog:ESXXASRA Date:01/18/2004 Time:14:37:09 Lang:COBOL/MVS
X:          828184 comp-3.           V550          BLW=0000+713,0000003 3P
                                           V550
                                           V550          BLW=0000+716,0000006 0CL4
C:          ES                       V550          BLW=0000+716,0000006 2C
C:          RA                       V550          BLW=0000+718,0000008 2C
C:          ESXXASRA alue 'ESXXASRA'. V550          BLW=0000+71A,000000A 8C
                                           V550
                                           V550          BLW=0000+722,0000012 0CL16
X:          0E508210                 V550          BLW=0000+722,0000012 4C
X:          40404040                 V550          BLW=0000+726,0000016 4C
X:          40404040                 V550          BLW=0000+72A,000001A 4C
X:          0E508210                 V550          BLW=0000+72E,000001E 4C
                                           V550
                                           V550          BLW=0000+732,0000022 0CL16
C:          ESPY.... ESPY....'.     V550          BLW=0000+732,0000022 8C
C:          ESPYCTL ESPYCTL '.      V550          BLW=0000+73A,000002A 8C
                                           V550
                                           V550          BLW=0000+742,0000032 0CL8
F:          0 ry value 0.           V550          BLW=0000+742,0000032 4C
PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP)+
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```

**Missing Program Listing**

When you select Option 2 from the Master Menu, if the program listing for a load module is missing, the following information displays in the Failing Program Statement area.

Failing Program Statement (N/A)

====> Unavailable : No source exists for program ESXXASRA.

If there is an older version of the listing available to the Debug/Viewing Server (DVS), the following screen displays when you press PF4 (SRC).

```

Date: 05/31/2004 DA-CICS           - Program Source Selection(81)   Time: 17:21:50
Command:
Compile Date Compile Time Language   Compile Date Compile Time Language
01/29/2004    12:04:32   COBOL/MVS
PF1(HELP) PF3(END)
(c) Copyright 1994-2004 by SERENA Software, Inc.

```

Position the cursor on the line with the listing you want to use as a substitute and press Enter. The Program Source screen for this listing displays:

```

Date: 05/31/2004      DA-CICS      - Program Source (76a)      Time: 17:23:21
Command:
----- Prog:ESPUSACO Date:01/29/2004 Time:12:04:32 Lang:COBOL/MVS
P: 000E2E 000E33 000230      MOVE WS-BADFIELD TO WS-GOODFIELD.
      000231
      000232 DB2-ERROR.
      000233
P: 000E34 000E6B 000234      CALL 'ILBOABN0'.
      000235
      000236 MAIN-9000.
      000237
P: 000E6C 000EDB 000238      STOP RUN.

PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP) +

```

### **Original Source Code: Translator Input**

This is the untranslated original source code before it was input to the CICS translator. This can be copy code, CICS commands, or any other original COBOL source.

To display the Program Source (76b) screen for the original source code press **PF9** (SWAP) on the Program Source (76a) screen.

```

Date: 03/15/2004      DA-CICS      - Program Source (76b)      Time: 13:56:42
Command:
Prog:ESXXASRA Date:01/18/2004 Time:14:37:09 Lang:COBOL/MVS
58700      add BadField to GoodField                                V550
58800      .                                                         V550
58900*-----* V550
59000 p11-GenerateUserAbend section.                                V550
59100*-----* V550
59200      exec cics abend abcode('9022') end-exec                    V550
59300      .                                                         V550
59400*-----* V550
59500 p20-TestTranslatorInserts section.                            V550
59600*-----* V550
59700*      Note that this section is not executable.                  V550
59800      perform until CicsResponse not = dfhresp(normal)          V550
59900          if CicsResponse =                                      V550
60000              dfhresp(normal)                                    V550
60100          move 2 to WS-WorkArea01                                V550
60200          else                                                  V550
60300          move 1 to WS-WorkArea01                                V550
60400          end-if                                                V550
60500          if dfhresp(normal)                                    V550
PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP) +
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```

To view the contents of an individual field, place the cursor on the field and press **Enter**. The Data Division field displays.

## Point-and-Shoot Within Source

Use point-and-shoot to follow program logic statements by positioning the cursor on a paragraph name within a PERFORM or GO TO statement and press Enter.

```

Date: 03/15/2004      DA-CICS      - Program Source (76a)      Time: 14:39:04
Command:
----- Prog:ESXXASRA Date:01/18/2004 Time:14:37:09 Lang:COBOL/MVS

P: 000A62 000A79 000399      perform p01-Initialization
P: 000A7A 000A95 000400      perform p02-TestArrayManipulation
P: 000A96 000AB1 000401      perform p03-TestDataManipulation
P: 000AB2 000ACD 000402      perform p04-ArithmeticTests
P: 000ACE 000AE9 000403      perform p05-TestDuplicateLabels

PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP)+
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```

StarTool DA CICS takes you to that paragraph in the procedure division.

```

Date: 03/15/2004      DA-CICS      - Program Source (76a)      Time: 14:40:47
Command:
----- Prog:ESXXASRA Date:01/18/2004 Time:14:37:09 Lang:COBOL/MVS

                                000422 p02-TestArrayManipulation section.
                                000423*-----
                                000424* - Copy entry 1 of array WS-Array1 to the work area
P: 000B66 000B77 000425      set WS-A1-I1 to 1 move WS-A1(WS-A1-I1) to WS-Wor
                                000426* - Copy entry 2 of array WS-Array1 to entry 1.
P: 000B78 000B7D 000427      set WS-A1-I1 to 2
P: 000B7E 000B83 000428      set WS-A1-I2 to 1
P: 000B84 000B95 000429      move WS-A1(WS-A1-I1) to WS-A2(WS-A1-I2)
                                000430* - Test the setting of multiple index variables on
                                000431*      source statement.
P: 000B96 000BAD 000432      set WS-A3-I1 to 2 set WS-A4-I1 to 2 set WS-A4-I2
                                000433      .

PF1(HELP) PF2(LCB) PF3(END) PF5(FIND) PF6(RFIND) PF7(UP) PF8(DOWN) PF9(SWAP) +
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```

Two other examples of point-and-shoot within source are:

- Position the cursor on a field in a Procedure Division statement and press Enter to go to the Data Division field and storage contents. See [Data Division Display](#).
- Position the cursor on a field in the Data Division and press Enter to go to the dump storage starting at this location. See [Field Contents Display](#).

## DisAssembler Screen

The DisAssembler screen displays when the DAS or DISASM command is issued from a CICS Dump Text Display screen containing dump storage. First, type DAS (or DISASM) on the command line. Then, place the cursor on a valid hexadecimal dump location and press Enter (or press the PF key associated with this command). The Disassembler Screen is

formatted starting at the location of the cursor. Scrolling forward is allowed until the end of the program; scrolling back is allowed to the start of disassembly. To realign by 2 bytes and disassemble again, press PF11 (Left) or PF10 (Right). To change between decimal and hex offsets within instructions (to eliminate hex/decimal conversions), press PF9 (Swap).

```

Date: 03/15/2004      DA-CICS      - DisAssembler(70)      Time: 13:32:26
Command:
Seq# Offset Address Instruction Source Statement
  1 0010A0 0E2114B0 8599      DC X'8599' <--C'er'
  2 0010A2 0E2114B2 40404040  STH R4,64(,R4)
  3 0010A6 0E2114B6 40404040  STH R4,64(,R4)
  4 0010AA 0E2114BA 40404040  STH R4,64(,R4)
  5 0010AE 0E2114BE 4040D7F4  STH R4,2036(,R13)
  6 0010B2 0E2114C2 F060C99589A3 SRP 2453(7,R12),2467(R8),0
  7 0010B8 0E2114C8 E283      DC X'E283' <--C'Sc'
  8 0010BA 0E2114CA 9985      DC X'9985' <--C're'
  9 0010BC 0E2114CC 8595      DC X'8595' <--C'en'
 10 0010BE 0E2114CE E581      DC X'E581' <--C'Va'
 11 0010C0 0E2114D0 93A485A2  TS 1442(R8)
 12 0010C4 0E2114D4 40404040  STH R4,64(,R4)
 0010C8 0E2114D8 40404040  STH R4,64(,R4)
 14 0010CC 0E2114DC 4040D7F4  STH R4,2036(,R13)
 15 0010D0 0E2114E0 F160E2A38199 MVO 675(7,R14),409(1,R8)
 16 0010D6 0E2114E6 A3C2      DC X'A3C2' <--C'tB'
 17 0010D8 0E2114E8 9996      DC X'9996' <--C'ro'
 18 0010DA 0E2114EA A6A2      DC X'A6A2' <--C'ws'

PF1(HELP) PF3(END) PF7(UP) PF8(DOWN) PF9(SWAP) PF10(LEFT) PF11(RIGHT)
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```

Field Definitions	
Seq#	Disassemble statement number beginning with 1 at the starting location of the disassembly.
Offset	Offset within the program (load module) at which the disassembled instruction is located.
Address	Address where this instruction is located.
Instruction	Machine instruction in hexadecimal.
Source Statement	Disassembled source statement.

## Trace Table

Choose Option 3, Trace Table, from the Master Menu to display trace entries. (You can also navigate to this screen by choosing Option 6, Dump Table of Contents.)

The StarTool DA CICS trace table analysis function consists of two types of displays:

- The first display shows an unformatted trace in 132-character format.

```

Date: 03/15/2004   DA-CICS           - CICS Dump Text Display(60)   Time: 13:33:55
Command:                                                Scroll: PAGE
Trace Entries For Dumping Transaction
INTERNAL TRACE TABLE SIZE (0000065536)
REQUESTED TRANSACTION DUMP TRACE TABLE SIZE (0000016384)
ALLOCATED TRANSACTION DUMP TRACE TABLE SIZE (0000016384)
00056 QR   DD 0302 DDLO  EXIT  LOCATE/OK                0DABF270 , C4C3E3C5
00056 QR   AP F601 TDA  EXIT  WRITE_TRANSIENT_DATA/OK
00056 QR   AP 00E1 EIP  EXIT  WRITEQ-TD                OK
00056 QR   AP 00E1 EIP  ENTRY ADDRESS
00056 QR   AP D500 UEH  EVENT LINK-TO-USER-EXIT-PROGRAM ESPYAOAX AT EXIT POIN
00056 QR   AP D501 UEH  EVENT RETURN-FROM-USER-EXIT-PROGRAM ESPYAOAX WITH RET
00056 QR   AP 00E1 EIP  EXIT  ADDRESS                OK
00056 QR   AP 00E1 EIP  ENTRY  WRITEQ-TD
00056 QR   AP D500 UEH  EVENT LINK-TO-USER-EXIT-PROGRAM ESPYAOAX AT EXIT POIN
00056 QR   AP D501 UEH  EVENT RETURN-FROM-USER-EXIT-PROGRAM ESPYAOAX WITH RET
00056 QR   DD 0301 DDLO  ENTRY  LOCATE                0DA4EBC0,0005C4C7,DCTE,CE
00056 QR   DD 0302 DDLO  EXIT  LOCATE/OK                0DABF270 , C4C3E3C5
00056 QR   AP F600 TDA  ENTRY  WRITE_TRANSIENT_DATA  CESE,0DAE5A58 , 00000001,
00056 QR   DD 0301 DDLO  ENTRY  LOCATE                0DA4EBC0,000723E4,DCTE,CE
00056 QR   DD 0302 DDLO  EXIT  LOCATE/OK                0DABF270 , C4C3E3C5
00056 QR   AP F601 TDA  EXIT  WRITE_TRANSIENT_DATA/OK
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2004 by SERENA Software, Inc.

```

- To view the second format, press PF2 or type FMT on the command line.

```

Date: 03/15/2004   DA-CICS           - CICS Dump Text Display(60)   Time: 13:42:59
Command:                                                Scroll: PAGE
Trace Entries For Dumping Transaction
EIP EXIT WRITEQ-TD OK
EIP ENTRY ADDRESS
EIP EXIT ADDRESS OK
EIP ENTRY WRITEQ-TD RESPONSE(OK)
EIP EXIT WRITEQ-TD OK
EIP ENTRY ADDRESS
EIP EXIT ADDRESS OK
EIP ENTRY WRITEQ-TD RESPONSE(OK)
EIP EXIT WRITEQ-TD OK
EIP ENTRY ADDRESS
EIP EXIT ADDRESS OK
EIP ENTRY WRITEQ-TD RESPONSE(OK)
EIP EXIT WRITEQ-TD OK
EIP ENTRY ADDRESS
EIP EXIT ADDRESS OK
EIP ENTRY WRITEQ-TD RESPONSE(OK)
EIP EXIT WRITEQ-TD OK
EIP ENTRY ADDRESS
EIP EXIT ADDRESS OK
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

This screen provides an interpretation of the trace table entries resulting from application program calls to CICS services. Many trace entries generated by CICS system services are not shown. Some non-application program entries, such as an

ABEND trace entry, are shown if they are essential to understanding the program flow.

## CICS Program Call Summary

Choose Option 4, CICS Program Call Summary, on the Master Menu to view a summary of CICS program calls.

```
Date: 06/10/2011   DA-CICS       - CICS Dump Text Display(60)   Time: 12:58:19
Command:                                               Scroll: PAGE
Program Information For The Current Transaction
  Number of Levels 00000001
INFORMATION FOR PROGRAM AT LEVEL 00000001 of 00000001
  Program Name      ESPUSACO      Invoking Program CICS
  Load Point       183EC000      Program Length    00011A60
  Entry Point      983EC090      Addressing Mode   AMODE 31
  Language Defined COBOL         Language Deduced  COBOL II
  Commarea Address 00000000      Commarea Length  00000000
  Execution Key    USER         Data Location     ANY
  Concurrency     QUASIRENT      Api              CICSAPI
  Runtime         LE370
  Environment     User application
ESPUSACO
```

```
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2011 by SERENA Software, Inc.
```

## Control Blocks

Choose Option 5, Control Blocks, from the Master Menu to display the CICS Dump Control Blocks screen.

```

Date: 03/15/2004 DA-CICS          - CICS Dump Control Blocks(56)   Time: 14:17:16
Command:                               Scroll: PAGE
V:620 Job:CICSQ101 App:CICSQ101 Code:ASRA Trn:ESRA Pgm:ESXXASRA Date:03/15/2004
- Cics Level = 0620
- Task Control Area
- Task Control Area (system Area)
- Transaction Work Area
- Exec Interface Structure
- System Exec Interface Block
- Exec Interface User Structure
- Exec Interface Block
- Table Manager Lock Block
- Kern Stack Entry Owned By Dfhpcxdf
- Kern Stack Entry Owned By Dfhduxd
- Kern Stack Entry Owned By Dfhdudu
- Kern Stack Entry Owned By Dfhabab
- Kern Stack Entry Owned By Dfhapl1
- Kern Stack Entry Owned By Dfhpgle
- Lifo Stack Entry Owned By Dfhepc / Link-reg Offset = 000ff8.
- Kern Stack Entry Owned By Dfhapl1
- Kern Stack Entry Owned By Dfhpgpg
- Kern Stack Entry Owned By Dfhxmta
PF1(HELP) PF3(END) PF5(ECB) PF6(PRINT) PF7(UP) PF8(DOWN) PF10(LEFT)      +
(c) Copyright 1994-2004 by SERENA Software, Inc.

```

To select a control block, place the cursor on a line and press Enter. The control block displays. In this example, the Task Control Area was selected.

```

Date: 03/15/2004 DA-CICS          - CICS Dump Text Display(60)   Time: 14:18:56
Command:                               Scroll: PAGE
Task Control Area
00000000 0005C180 00000001 0E14E4B0 0004D248 0DAE6DE8 00000000 20000000 0000
00000020 00000000 0000056C 00000000 00000000 00000000 8DA706A0 00000000 0000
00000040 00000000 00000000 00000000 00000000 00000000 00000000 00000000 0000
00000060 00000000 00000000 00C3C5E2 C5E2D9C1 00000000 00000000 00000000 0000
00000080 00000000 00000000 00000000 00000000 00000000 00000000 00000000 0000
000000A0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 0000
000000C0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 8004
000000E0 00000000 00000000 00000000 008BB000 00000000 00000000 00000000 0000
00000100 00000000 00000000 00000000 00000000 0000056C 0D9FBD7C 00000056 0000
00000120 00000000 00000000 00000000 00000000 00000000 00000000 0DAE52E0 0000
00000140 0E21AAB0 00000000 00000000 00000000 00000000 00000000 00000000 0000
00000160 00000000 00000000 00000000 00000000 00000000 00000000 00000000 C1E2
00000180 00000800 0005C4EC 00000000 00000000 0005C388 0E20C308 00144128 0014
000001A0 00000000 8004C080 00000000 00000000 C5E2D9C1 0E14E4B0 00000000 0000
000001C0 00000000 C5E2D9C1 00000000 00000000 00000000 C1E2D9C1 00000000 0E49
000001E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 0000
00000200 00000000 00000000 00000000 00000000 00000000 00000000 00000000 0000
00000220 00000000 00000000 00000000 00000000 8004C400 00000000 00000000 0005

```

## Viewing IMS Control Blocks

If you installed the StarTool DA CICS IMS option (it is separately licensed), the following IMS control blocks are available:

- CICS-DBCTL Global Block
- CICS-DBCTL Control Transaction Data
- CICS-DBCTL Scheduling Block
- CICS-DBCTL Adapter Response Parms
- DL/I Program Communication Blocks
- CICS DL/I User Interface Block

You can also view the DL/I Program Communication Blocks and CICS DL/I User Interface Block through Option 9, IMS/DLI Data (see [Chapter 6, "Viewing Storage Locations" on page 82](#)).

## Viewing a Formatted Control Block

To see a formatted display of the control block, press PF2 (FMT), or type FMT on the command line and press Enter. If you receive the reply "Unsupported Control Block", then this control block cannot be formatted.

The Format Control Block screen displays the data in three formats: hexadecimal, character, and decimal. The screen also has a long and short format.

The following screen shows the long format, which contains comments and equates (EQU):

```

Date: 03/15/2004   DA-CICS   - Format Control Block(74)   Time: 14:22:29
Command:                                           Scroll: PAGE
Offs Leng --Hex--- Char --Decimal-- Task Control Area
*****
* * * *
* * * *           T A S K   C O N T R O L
* * * *
*****
          0000000C ...          TCACBAR EQU 12          TASK CON
*                               USING DFHTCADS,TCACBAR  BASE ADD
*                               USER'S T
*                               SETTING
0000 0008 0005C180 ..A.          DFHUSTCA DS  0D          USER T C
0004          00000001 ...
*****
0000 0004 0005C180 ..A.          377216 TCASYAA DS  A          T C A SY
0004 0001 00          .          0 TCAXMSRF DS  X          XM secon
          00000080 ...          TCAENQ31 EQU X'80'          1 = ENQ

```

Field Definitions	
Scroll	This is <i>not</i> the default SCROLL parameter. This is a 4-character field that is used in conjunction with the 4 available scroll commands. It simplifies the positioning of the DSECT information that appears within the screen. Scroll forward to the end of the control block. Scroll back to the starting point of the control block. Scrolling Left and Right only moves the DSECT source, not the data mapped into the DSECT. Scrolling left and right allows you to see all of the DSs, comment fields, comment lines and equates within the DSECT while the data remains in the same place on the screen. (This is especially helpful if you have an 80-character screen).
Offs	Offset within the control block (from zero) in which the DSECT field is located.
Leng	Length of this DSECT field (or that portion of the DSECT field that is displayed on this line).
Hex	Contents of the control block in hexadecimal.
Char	Contents of the control block in characters.
Decimal	Contents of the control block in decimal (if possible).
control block name	Contains the actual DSECT and comments.

To switch to the short format, press the PF9 key, or type SWAP on the command line and press Enter. The short format contains only DSECT lines that have DS statements. No EQU or comment-only lines display. Following is the short format:

```

Date: 03/15/2004    DA-CICS          - Format Control Block(74)    Time: 14:20:03
Command:                                           Scroll: PAGE
Offs Leng --Hex--- Char --Decimal-- Task Control Area
0000 0008 0005C180 ..A.          DFHUSTCA DS    0D          USER T C
0004      00000001 ....
0000 0004 0005C180 ..A.          377216 TCASYAA DS    A          T C A SY
0004 0001 00          .          0 TCAXMSRF DS    X          XM secon
0005 0001 00          .          0 TCATCQLN DS   0X          ENQ argu
0005 0001 00          .          0 TCATCQL4 DS    X          ENQ arg
0006 0001 00          .          0          DS    X          reserved
0007 0001 01          .          1 TCAFCI  DS    X          FACILITY
0008 0004 0E14E4B0 ..U.          236250288 TCAFCAA DS    A          FACILITY
000C 0004 0004D248 ..K.          315976 TCACSOAD DS    A          A(CSA OP
0010 0004 0DAE6DE8 ..Y          229535208 TCALCDSA DS    A          CURRENT
0014 0004 00000000 ....          0 TCATCTFA DS   0A          TCTTE AD
0014 0004 00000000 ....          0 TCATCQA4 DS   0A          ENQ arg
0014 0004 00000000 ....          0 TCATCQA  DS   0A          ENQ arg
0014 0004 00000000 ....          0 TCATCEA  DS    A          TASK CON
0018 0001 20          .          32 TCATCEI  DS   0C          TASK CON
0018 0001 20          .          32 TCATCDC  DS    X          TASK CON
0019 0001 00          .          0 TCATCTR  DS    X          TASK CON

```

To search for the relevant control block DSECT field name in the short format or long format screen, use the FIND command or look manually. (The Find command works only on the DSECT source, not on the control block data. This allows you to search for control block DSECT names.)

To see if an address points to another control block, place the cursor on the address and press Enter. If that address points to another control block, it displays in DSECT format. If it does not point to a control block (a program or data area) or it points to a control block

for which StarTool DA CICS does not have a DSECT, the regular hexadecimal dump screen for this area displays. (See [Appendix A, "Adding DSECTS"](#).)

To see a DSECT that you want to use, add the DSECT to the DSECT database (See [Appendix A, "Adding DSECTS"](#)). The FMT command picks it up. Add an operand to the FMT command to identify the control block. For example, FMT MYCB.

If you want to display a user-added DSECT in the middle of the hex data screen, do one of the following:

- Type the FMT *user-DSECT* command and position the cursor at the beginning of a valid user control block dump location within the screen.
- Type *user-DSECT* in the command line, position the cursor at the beginning of the user DSECT, and press the FMT PF key.

Either method results in the DSECT screen being formatted starting at the beginning of the control block (or at the location of the cursor).

## Dump Table of Contents

Choose Option 6 from the Master Menu to display the CICS Dump Contents Table. It lists all the pieces of information found within a dump, which varies depending on the type of dump.

```

Date: 03/15/2004  DA-CICS      - CICS Dump Contents Table(50) Time: 14:23:31
Command:                                           Scroll: PAGE
V:620 Job:CICSQ101 App:CICSQ101 Code:ASRA Trn:ESRA Pgm:ESXXASRA Date:03/15/2004
- Terminal Screen At The Time Of Interrupt
- User Remarks At The Time Of Interrupt
- Cics Level = 0620
- Dump Diagnostic Data
- Task Control Area
- Task Control Area (system Area)
- Transaction Work Area
- Exec Interface Structure
- System Exec Interface Block
- Exec Interface User Structure
- Exec Interface Block
- Table Manager Lock Block
- Kern Stack Entry Owned By Dfhpcxdf
- Kern Stack Entry Owned By Dfhduxd
- Kern Stack Entry Owned By Dfhdudu
- Kern Stack Entry Owned By Dfhabab
- Kern Stack Entry Owned By Dfhapli1
- Kern Stack Entry Owned By Dfhpgle
- Lifo Stack Entry Owned By Dfhepc / Link-reg Offset = 000ff8.
PF1(HELP) PF3(END) PF5(ECB) PF6(PRINT) PF7(UP) PF8(DOWN) PF10(LEFT)      +
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```

To view a particular section of the dump, position the cursor on that title and press Enter.

If the menu entry is preceded with a (+) sign, it indicates that there are additional control blocks associated with the entry; to view them, place the cursor on the entry and press Enter. If the menu entry is preceded by a (-) sign, then there are no additional control blocks associated with the entry.

To print sections of a dump, type an S in the cursor field next to the entries you want to print; then, press PF6 (PRINT), or type PRINT on the command line and press Enter. OUT= parameters are supported. See [Commands](#) for more information.

At any time, you can return to the CICS Dump Contents Table and choose another area of the dump to view.

See [Interpreting Transaction Dumps](#) for a summary of available control blocks.

## Source Listing Management

Choose Option 7 from the Master Menu to display the Source Listing Management screen. From this screen you can delete any source member.

To delete a source member, type a **D** in the cursor field next to the program name and press Enter; or place the cursor on the cursor field and press PF4 (or whatever PF Key is defined for the delete function).

```

Date: 03/15/2004 DA-CICS          - Source Listing Management(57)  Time: 14:24:46
Command:                               Scroll: PAGE
  Program      Date      Time      Rel      Dataset Name
_ ESPUSACO    2002-12-26  11:22:36  620    STRQA.DA550.DBDF.D011226.T112236.A028
_ ESPUSACO    2002-12-26  11:42:50  620    STRQA.DA550.DBDF.D011226.T114250.A028
_ ESPUSACO    2002-12-26  13:52:27  620    STRQA.DA550.DBDF.D011226.T135227.A05B
_ ESPUSACO    2002-12-27  08:50:39  620    STRQA.DA550.DBDF.D011227.T085039.A026
_ ESPUSACO    2002-12-27  10:57:32  620    STRQA.DA550.DBDF.D011227.T105732.A026
_ ESPUSACO    2002-01-02  12:48:48  620    STRQA.DA550.DBDF.D020102.T124848.A027
_ ESPYDEMO    2002-12-26  09:21:41  620    STRQA.DA550.DBDF.D011226.T092141.A05E
_ ESPYDEM1    2002-12-26  09:20:15  620    STRQA.DA550.DBDF.D011226.T092015.A05E
_ ESPYDEM2    2002-12-26  09:20:40  620    STRQA.DA550.DBDF.D011226.T092040.A05E
_ ESPYDEM3    2002-12-26  09:20:56  620    STRQA.DA550.DBDF.D011226.T092056.A05E
_ ESPYDEM4    2002-12-26  09:21:11  620    STRQA.DA550.DBDF.D011226.T092111.A05E
_ ESPYDEM5    2002-12-26  09:21:25  620    STRQA.DA550.DBDF.D011226.T092125.A05E
_ ESXXASRA    2002-12-26  09:20:04  620    STRQA.DA550.DBDF.D011226.T092004.A026
_
_
_
_
_
_
PF1(HELP) PF3(END) PF4(DEL) PF7(UP) PF8(DOWN) PF10(LEFT) PF11(RIGHT)
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```

Field Definitions	
Scroll	Default SCROLL parameter.
Cursor field	Allows you to type a D to delete a listing.
Program	Program name of the source listing.
Date	Compile date of the program.
Time	Compile time of the program.

Field Definitions	
Rel	CICS release for which this program was compiled.
Dataset Name	VSAM dataset name that is allocated for each source member.

## Interpreting Transaction Dumps

This section describes the control blocks of a transaction dump that are accessible through the Dump Table of Contents (Option 6). Only the parts of the transaction dump necessary for problem determination are described in this section. Some control blocks that appear in the transaction dump are intended for problem determination by IBM Service and are not described here.

### Symptom String

The Symptom String tells you about the circumstances of the transaction dump. For example, it may show that the dump was taken because the transaction abended with abend code ASRA.

### CICS/ESA Level

The CICS/ESA level shows you what level of CICS/ESA was being executed when the transaction dump was taken.

### Remote Abend Indicator

A message indicates if the transaction abended remotely (the abend originally occurred in a remote distributed program link (DPL) server program), and the abend is being reissued on the local system. The message contains the SYSID of the system that passed the abend to the local system. This information is taken from the transaction abend control block.

### Program Status Word (PSW)

If the transaction dump was taken in response to a local abend with abend code AICA, ASRA, ASRB, or ASRD, a PSW is formatted from the dump data set. It belongs to the program that was being executed when the abend occurred. It is taken from the transaction abend control block.

### Registers at the Time of Interrupt

If the transaction abended locally with abend code AICA, ASRA, ASRB, or ASRD, a set of registers display that belong to the program that was executing when the error was detected. They are taken from the transaction abend control block.

## Execution Key

If the transaction abended locally with abend code ASRA or ASRB, the Execution Key that is in force at the time of the abend is formatted. It is taken from the transaction abend control block.

## Task Control Area (TCA)

The entire Task Control Area displays for the transaction that abended. The user area precedes the system area.

## Task Control Area, System Area

The system area of the Task Control Area is formatted separately because it can be addressed separately by CICS. It contains system information that relates to the task and can be a valuable source of debugging information. The TCAPCCEP field gives you the entry point of the current application program.

## Transaction Work Area (TWA)

Any Transaction Work Area relating to the transaction is formatted, if present.

## EXEC Interface Structure (EIS)

The EIS contains information about the transaction and program specific to the execution interface component of CICS.

## System EXEC Interface Block (SYSEIB)

This is used solely by programs using the SYSEIB option. See the *CICS/ESA Application Programming Guide* for more details.

## EXEC Interface User Structure (EIUS)

The EIUS contains execution interface component information that must reside in user key storage.

## EXEC Interface Block (DFHEIB)

DFHEIB contains information that relates to the passing of EXEC requests from the program to CICS, and the passing of data between the program and CICS. The EIBFN field shows the type of the last EXEC command to be issued by the program. For the meanings of all the values that EIBFN can contain, see the *CICS/ESA Application Programming Reference Manual* or the *CICS/ESA User's Handbook*.

## Kernel Stack Entries

The kernel stack entries contain information that was saved by the kernel on behalf of programs and subroutines on the kernel linkage stack. If you refer the problem to the IBM Support Center, they might need to use the stack entries to find the cause of the failure.

## Common System Area (CSA)

The CSA is a main control area used by CICS. It contains information that relates to the system as a whole, and to the task that was running when the transaction dump was invoked. It can be very useful for debugging both application problems and system problems. You cannot access fields in the CSA in your programs. Attempting to do so causes your transaction to terminate abnormally with abend code ASRD.

## Common System Area Optional Features List (CSAOPFL)

The Common System Area Optional Features List, an extension of the CSA, contains the addresses of CICS optional features.

## Common Work Area (CWA)

The CWA is the installation defined work area for use by all programs and is formatted if it exists.

## Transaction Storage

Transaction Storage might have been obtained by CICS to store information about a transaction, or it might have been explicitly GETMAINED by the transaction for its own purposes. There might be several such areas in the dump, each introduced by a header describing it as Transaction Storage of a particular class, for example:

```
USER24    USER31
CICS24    CICS31
```

Transaction storage class CICS31 contains, among other things, the transaction abend control block (TACB). To find it, look for the word DFHTACB. The TACB contains:

- The PSW and general purpose registers of the program executing at the time of the abend (for local AICA, ASRA, ASRB and ASRD abends only. However, for some AICA abends, only the "next sequential instruction" part of the PSW and the registers are present).
- The name of the failing program.
- The offset within the failing program at which the abend occurred (for local ASRA, ASRB and ASRD abends only).
- The execution key at the time of the abend (for local ASRA and ASRB abends only).
- Whether the abend was caused by an attempt to overwrite a protected CICS DSA (local ASRA abends only).

**NOTE** If theabend originally occurred in a remote DPL server program, the word \*REMOTE\* is present. If this is the case, the registers and PSW are not present.

## **Terminal Control Table Terminal Entry (TCTTE)**

The TCTTE contains information about the terminal that is the principal facility of the transaction. You can find one TCTTE for the transaction if the transaction is terminal oriented. For daisy-chained transactions, you may find more than one. To look at the TIOA for the task, find the address in field TCTTEDA of the TCTTE.

## **Program Storage**

The Program Storage areas contain all linked programs for this transaction that have not yet returned. This is where you can find the instructions addressed by register 14 and by the PSW, and hence the point of failure in your program.

## **Trace Table (abbreviated format)**

The abbreviated format of the Trace Table gives a one entry per line summary of the trace entries in the internal trace table. The value of the Trace Table for debugging depends on the tracing selectivity that was in effect immediately before the transaction abended.

If you selected EI level-1 and PC level-1 tracing for your task, you can identify the last CICS command issued by your task quite easily.

## **Trace Table (extended format)**

The extended format of the Trace Table follows the abbreviated format. It contains more detail; however, you can get all the information you need using the abbreviated trace.

## **Program Name Index**

The final item in the transaction dump is the Program Name Index. This shows you all the modules that were in storage when the error was detected, and their addresses.



---

## Chapter 4

---

# System Dumps

To use StarTool DA to diagnose your system dumps, see the following topics:

- [CICS Dump Contents Table](#)
- Diagnostic debugging ([Storage Violations](#))
- Summary of CICS system abend control blocks ([System Dump Information](#))
- [Interpreting Storage Ownership](#)
- [Displaying Storage Blocks](#)

## Dump Contents Table

The CICS Dump Contents Table displays when you select a system dump from the Dump Database Contents screen. It lists all the pieces of information found within a dump, which varies depending on the type of dump.

Use this screen to position within the dump. Once within a section, you can achieve a more exact location with address manipulation and StarTool DA CICS commands.

Each of the menu entries may or may not contain additional information or topics relating specifically to that control block. If the menu entry is preceded with a (+) sign (Quantity/Print Indicator field), it indicates there are additional control blocks associated with this entry. If the menu entry is preceded by a (-) sign, then there are no additional control blocks associated with this entry.

- To view the screen formatted with diagnostic information, select the entry Dump Diagnostics from the Dump Contents Table. (All of the other entries from the Table of Contents display the dump on the screen in standard hexadecimal format).
- To view additional control blocks (if applicable), use SCROLL commands or associated PF keys. (See [System Dump Information](#) for a summary of available control blocks.)
- To view a particular section of the dump, position the cursor to that control block title and press Enter. StarTool DA CICS presents this formatted control block as shown in Screen 60 or 61.
- To print sections of a dump, you must be in Screen 50 or 51. Type an S over the Quantity/Print indicator field (the left-most column) of the rows you want to print. Then, type PRINT on the command line and press Enter, or press the Print PF key. (OUT= parameters are supported.)

At any time, you can press PF3 to return to the table of contents menu and choose another area of the dump to view.

## Storage Violations

The Storage Violation screen displays when you select Dump Summary from the Dump Contents Table menu. When you select the PSW & Registers at the time of Interrupt, StarTool DA CICS formats the dump and provides diagnostic debugging information. For information about interpreting storage ownership and violations, see [Interpreting Storage Ownership](#).

## System Dump Information

This section summarizes the control blocks of CICS system abends.

The kernel domain storage areas (formatting keyword KE) and the internal trace table (formatting keyword TR) are the most useful for investigating a system dump.

The formatted output for kernel domain (search for `===KE`) contains summary information about the error. The internal trace table (identified by `===TR`) contains the exception trace entry (if any) that was made at the time the error was detected.

Storage summaries for transaction manager, dispatcher domain, and loader domain (formatting keywords XM, DS, and LD, respectively) are also useful. In each case, level-1 formatting is sufficient in the first instance.

### Interpreting the Evidence

Look at the messages that accompany the abend, the exception trace entry in the internal trace table, and the symptom string at the start of the dump. Messages that accompany a CICS system abend often point directly to the cause of the failure.

### The Exception Trace Entry

When a CICS system abend occurs, an exception trace entry is made to the internal trace table and any other active trace destination. It does not matter whether or not you have tracing turned on; the trace entry is still made.

If the trace table contains more than one exception trace entry, it is likely that the last one is associated with the dump. However, this might not always be the case, and you should make sure that you have found the correct entry. Dumps can be requested without a corresponding exception trace entry being made.

The exception trace entry gives information about what was happening when the failure occurred, and data that was being used at the time.

### The Symptom String in the Dump

The symptom string in a system dump is similar to the short symptom string at the beginning of a CICS transaction dump. If your CICS system is running under MVS/ESA SP 4.1 or a later, upward compatible release, the symptom string is written to SYS1.LOGREC. It is issued as part of message DFHME0116, and it appears at the beginning of a CICS system dump.

If your CICS system is running under an earlier release of MVS/ESA, the symptom string is issued as part of message DFHME0116 and appears at the beginning of a CICS system dump.

Although the symptom string provides keywords for searching the IBM RETAIN database, it can also provide significant information about what happened when the error occurred, such as the abend code. If you need to report a problem to the IBM Support Center, you are often asked to quote the symptom string.

The symptom string provides a number of keywords that you can type directly into RETAIN and use to search the RETAIN database. Keywords are shown in the table. The keywords are used at the IBM Support Center to discover duplicate problems, or problems that have already been reported by other users and for which a solution is available

Symptom String Keyword	Meaning
PIDS	Product ID (CICS product number).
LVLS	Level indicator (CICS release level).
RIDS	Module name.
PTFS	Module PTF level.
MS	Message ID reporting error.
AB	Abend code.
ADRS	Address or offset indicator.
PRCS	Return code.
PCSS	Software indicators or keywords that help in analysis.
OVS	Overlaid storage.
FLDS	Name of a field associated with problem.
REGS	Software register associated with problem.
VALU	Value of a named field or register.

If the system is unable to gather much information about the error, the symptom string is less specific. In such cases, it will not help you with problem determination, and you should look to other parts of the dump such as the Kernel Domain Storage Summary.

## The Kernel Domain Storage Areas

You can gather the following information from the kernel domain storage areas:

- A summary of tasks and their status, and whether or not they were in error when the dump was taken.
- An error analysis report for each task currently in error.
- Error reports for all the tasks that have been in error since CICS was last brought up.
- The linkage stack for each task, showing which programs have been called and have not yet returned.
- The tasks associated with the error.

- Which tasks are associated with the error from the kernel task summary. This tells you which tasks were in the system when the dump was taken, whether or not they were running, and if they were in error.
- The task summary, in the form of a table, where each line represents a different task. The total number of tasks shown is equal to the value of the maximum tasks value (MXT) for the system.
- The kernel task number in the left-hand column of the task summary. The kernel domain uses this number to identify the task. This is not the same as the normal CICS task number taken from field TCAKCTTA of the TCA.
- Which task was in error at the time the dump was taken (a value of \*YES\* displays in the error column for that task in the task summary table in the formatted dump).

**NOTE** If the recovery routine that is invoked when the error occurs does not request a system dump, you will not see any tasks flagged in error. In this case, the system dump may have been requested by a program that is being executed lower down in the linkage stack. It may have received an abnormal response following recovery. The program that received the error is no longer in the stack, so it cannot be flagged. However, error data for the failing task was captured in the kernel domain error table. Error data is also captured in the error table even when no system dump is taken.

## STATUS column

Each task has one of the following values:

Value	Meaning
***Running**	The task was running when the system dump was taken. Most of the time, only one task is shown as running. If more than one task is shown as running, the different tasks are attached to separate TCBS.
*Not Running*	The task is in the system but is currently not running. For example, it may be suspended because it is waiting for some resource, or it may be ready to run but waiting for a TCB to become available.
KTCB	Refers to CICS control blocks that correspond to the CICS TCBS. These are treated as tasks in the kernel task summary.
Unused	Either the task was in the system but is now terminated, or there has not yet been a task in the system with the corresponding task number. Earlier, unused tasks might have run and terminated, and later ones might never have been actual tasks. If no tasks are shown to be unused, the system is at MXT.

**NOTE** The task shown to be in error will have a status of \*\*\*Running\*\*.

Tasks shown to be \*Not Running\* are less likely to be associated with the error, but it is possible that one of these could have been flagged with an error. If you find this to be so, the most likely explanation is that the task in error was attempting recovery when, for some reason, it was suspended.

## The TRAN\_# Column

The TRAN\_# column for a task can contain:

- A number that matches the task number in the corresponding trace.
- TCP for the CICS terminal control task.

- Other character entries for CICS system tasks (for example, a component identifier like AP for a CICS system task in the AP domain).

When you are working with trace output, use the number from the `TRAN_#` column to identify entries associated with a task up to the point at which that task passes control to CICS.

## The KE\_NUM columns

To identify the CICS processing associated with the user task, use the entry in the `KE_NUM` column of the kernel task summary. This matches the `KE_NUM` shown in the full trace entries for the task, and enables you to distinguish the CICS processing associated with the task you are interested in from other CICS processing.

## Finding More Information about the Error

More information about the failure is given in the summary information for the task in error. This information appears after the kernel task summary. It gives you a storage report for the task, including registers and PSWs, and any data addressed by the registers. The PSW is the program status word used by the machine hardware to record the address of the current instruction being executed, the addressing mode, and other control information.

Look first in the dump for this header, which introduces the error report for the task:  
`=KE: KE DOMAIN ERROR TABLE`

Next, you will see the kernel error number for the task. Error numbers are assigned consecutively by the kernel, starting from 00000001. For example, you might see this:  
`=KE: ERROR NUMBER: 00000001`

The error number tells you the number of program checks and system abends that occurred for this run of CICS. Not all of them have necessarily resulted in a system dump.

## Kernel Error Data

The interpretation by the kernel of what went wrong. This includes the error code, the error type, the name of the program that was running, and the offset within the program.

The error code gives you the system and user completion codes issued when the abend occurred.

The error type tells you whether or not the error was associated with a program check, a system abend, or an internal request for system recovery.

## Error Report

This report is where the system records that an error occurred, and the circumstances of the failure. The general format of the information:

```
Error happened in program pppppppp at offset xxxxxxxx
Error happened...
```

If the offset is given as `X'FFFF'`, this means that the error occurred outside the scope of the named module, and therefore, CICS cannot give a true offset. In this case, the linkage stack method does not work. It is worthwhile checking for any global user exits that were

enabled for the module at the time of the failure, because the failure might have occurred in a user exit.

## Diagnostic Messages

After the interpretation by the kernel of the error, you see one or other of these diagnostic messages:

Error happened under the CICS RB.

This means that the error was detected when the CICS code was executing, or when an access method called by CICS was running (for example, VSAM or QSAM). The CICS RB (request block) is an MVS control block that records the state of the CICS program.

Error did not happen under the CICS RB.

This message is issued in any of these circumstances:

- When an error occurs in CICS SVC code.
- When an error occurs in a CICS VTAM exit.
- When CICS detects a runaway task during the execution of an MVS service request.
- When an error occurs during the execution of an SVC request that was made by CICS or an access method invoked by CICS.

After either of these messages, you receive data that is likely to be related to the problem. The data you get depends on whether or not the error happened under the CICS RB.

## Error Data for the Failing Task

If the error happened under the CICS RB, the error data you get in the task storage report is based on values in the PSW and the CICS registers at the time the error was detected.

If the error did not happen under the CICS RB, for example when CICS was calling an MVS service, you get data based on two sets of registers and PSWs. The registers and PSW of the CICS RB at the time of the error constitute one set. The registers and PSW of the RB in which the error occurred constitute the other set. This data relates to the execution of an SVC routine called by CICS. The error may have occurred, however, during an IRB interrupt or in an SRB. You can confirm whether this has happened by checking flags `KERNEL_ERROR_IRB` and `KERNEL_ERROR_SRB_MODE`.

Any storage addressed by the registers and PSW is included in the error data for the failing task.

**NOTE** Only the values of the registers and PSW, not the storage they address, are guaranteed to be as they were at the time of the error. The storage shown is a snapshot taken at the time the internal system dump request was issued. Data might have changed because a program check was caused by an incorrect address in a register, or short lifetime storage is addressed by a register.

In general, where error data is given for a series of errors, the older the error, the less likely it is that the storage is as it was at the time of the failure. The most recent error has the highest error number; it might not be the first error shown in the output.

The registers might point to data in the CICS region. If the values they hold represent 24-bit addresses, you see the data around those addresses. Similarly, if their values represent 31-bit addresses, you get the data around those addresses.

It could be that the contents of a register might represent both a 24-bit address and a 31-bit address. In that case, you get both sets of addressed data. (A register might contain a 24-bit address with a higher order bit set, making it appear like a 31-bit address; or it could contain a genuine 31-bit address).

If, for any reason, the register does not address any data, you see either of these messages:

```
24-bit data cannot be accessed
31-bit data cannot be accessed
```

This means that the addresses cannot be found in the system dump of the CICS region. MVS keeps a record of how CICS uses storage, and any areas not used by CICS are considered to be outside the CICS address space. Such areas are not dumped in an MVS SDUMP of the region.

It is also possible that the addresses were within the CICS region, but they were not included in the SDUMP. This is because MVS enables you to take SDUMPs selectively, for example without LPA. If this were to happen without your knowledge, you might think you had an addressing error when, in fact, the address was a valid one.

## The Linkage Stack to Identify the Failing Module

This method is only valid if the abend occurred in a module or subroutine that has a kernel linkage stack entry. This is the case only where the module or subroutine was invoked by one of these mechanisms:

- A kernel domain call
- A kernel subroutine call
- A call to an internal procedure identified to the kernel
- A LIFO call

Routines that are invoked by assembler language BALR instructions do not have kernel linkage stack entries. Having found which task was in error from the kernel's task summary, you need next to find out which module was in error.

Find the task number of the task in error from the KE\_NUM column, and use this as an index into the linkage stack entries. These are shown in the dump after the task summary.

The TYPE column in the kernel linkage stack can contain any of the following entries:

Bot	The first entry in the stack.
Dom	Stack entry caused by a domain call.
Sub	Stack entry caused by a subroutine.
Lifo	Stack entry caused by a LIFO module.
Int	Call to an internal procedure identified to the kernel.

A linkage stack for a task represents the sequence in which modules and subroutines have been called during execution of a task. It provides valuable insight into the sequence of events up until the time of failure. It also flags any program or subroutine that was executing when the error was detected.

The modules and subroutines are shown in the order in which they were invoked, so the first module you see is at the bottom of the stack, and the second module is next from bottom.

The last module or subroutine in the listing is at the top of the stack. It represents the last call that was made before the dump was taken. Assuming that the system abend caused the dump to be taken, this is likely always to be a routine associated with dump domain.

**NOTE** If module DFHAPDS is flagged in error, consider first if an application is the cause of the failure. DFHAPDS is a transaction manager program, and it is on the linkage stack whenever an application is being executed. If an application is the cause of the error, it is your responsibility to correct the problem.

## Using the PSW to Find the offset of the Failing Instruction

You can calculate the offset of the failing instruction from the PSW, although, you seldom need to because the offset is quoted in the diagnostics section of the dump.

### *Finding the PTF level of the Module in Error*

You can find the PTF level of the module in error in the loader domain program storage map summary, which you can get using the dump formatting keyword LD.

### *Program Storage Map Summary*

The program storage map summary shows the PTF level ULnnnnn, where nnnnn is a five-digit number.

### *Override*

The override is part of the loader domain program storage map summary.

Entries made in the R/A MODE OVERRIDE columns are the value of the RMODE and AMODE as supplied on the DEFINE\_PROGRAM call for that program. If a REQUIRED\_RMODE or REQUIRED\_AMODE is not specified, a - (dash) symbol appears in the appropriate column. If AMODE\_ANY or RMODE\_ANY is specified, 'ANY' appears in the appropriate column. Other values are shown as specified.

## Interpreting Storage Ownership

Use the Storage Ownership feature to identify the transaction (owner) of storage above and below the requested storage address provided in a CICS transaction system environment. This feature, known as Display Storage Ownership (DSO) is available only for SVC/system dumps to find the offender of a storage violation. To invoke this feature, type DSO on the command line, place the cursor on any valid address and press Enter. This displays the Storage Ownership Display (62) screen.

**NOTE** You can also assign the DSO command to a PF key using the instructions in [Function Key Definitions Screen](#).

## Initiating Storage Ownership

To illustrate the use of the Storage Ownership feature, consider the example below:

- 1 Log onto CICS and type ESPY.
- 2 Tab to the database you want to investigate on the Dump Selection/Display (30) panel and press Enter.

This the displays the Database Contents (40) panel, a sample of which is shown below.

```

Date: 02/27/2004    DA-CICS          - Dump Database Contents(40)  Time: 09:53:40
Command:                                           DumpDB: ESPYDB01
Code Tran Term   Date   Time  Program CicsJob  Applid  Type Dups Rtpd
_  ATNI CEMT CP11 02/27/2004 09:46 DFHEIN01 CICSQ202 CICSQ202 TRAN 0 45
_  SYSD SYST      02/27/2004 05:43 DFHSRP P CICSQ202 CICSQ202 SYST 0 45
_  ASRA ES76 CP09 02/27/2004 05:43 ESPYC076 CICSQ202 CICSQ202 TRAN 0 45
_  SYSD SYST      02/26/2004 16:28 DFHSRP P CICSQ202 CICSQ202 SYST 0 45
_  E76A ES76 CP07 02/26/2004 16:30 ESPYC076 CICSQ202 CICSQ202 TRAN 0 45
_  ASRA ESTG CP07 02/26/2004 16:28 ESPYSTRG CICSQ202 CICSQ202 TRAN 0 45
_  SYSD SYST      02/26/2004 15:54 DFHSRP P CICSQ202 CICSQ202 SYST 0 45
_  ASRA ESTG CP07 02/26/2004 15:54 ASM1      CICSQ202 CICSQ202 TRAN 0 45
_  SYSV SYST      02/26/2004 11:32 DFHSMAR CICSQ202 CICSQ202 VIOL 0 45
_  ASRA ES76 CP11 02/26/2004 10:22 ESPYC076 CICSQ202 CICSQ202 TRAN 0 45
_  ASRA ESRA CP13 02/24/2004 15:12 ESXXASRA CICSQ202 CICSQ202 TRAN 0 45
_
_
_
_
_
_
_
_
_
_
PF1(HELP) PF3(END) PF4(DEL) PF5(KEEP) PF6(PRINT) PF7(UP) PF8(DOWN)
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```

- 3 Tab to the system violation (SYSV) and press Enter. VIOL also displays in the type column.

This displays the CICS Dump Contents Table (50) panel.

```

Date: 02/27/2004  DA-CICS          - CICS Dump Contents Table(50)  Time: 09:57:35
Command:                                           Scroll: CSR
V:620 Job:CICSQ202 App:CICSQ202 Code:SYSV Trn:SYST Pgm:DFHSMAR Date:02/26/2004
- Terminal Screen At The Time Of Interrupt
- User Remarks At The Time Of Interrupt
- Summary Of Active - Address Spaces
- Dump Summary
+ Aitm: Auto-install Model Manager - Control Blocks
- Ap: Ap Domain Transaction Summary
+ Ap: Ap Domain Transaction Control Blocks
- Ap: Ap Domain Transaction Control Blocks And Ledata
+ Au: Cics Affinities Utility Control Blocks
+ Ba: Business Application Manager Domain - Summary
+ Ba: Business Application Manager Domain - Control Blocks
+ Cc: Local Catalog Control Blocks
+ Cc: Global Catalog Control Blocks
+ Cp: Common Programming Interface - Control Blocks
+ Br: Bridge Summary
+ Br: Bridge Control Blocks
+ Csa: Common System Area And Optional Features List
+ Cwa: Common Work Area
+ Db2: Cics/db2 - Summary
PF1(HELP) PF3(END) PF5(ECB) PF6(PRINT) PF7(UP) PF8(DOWN) PF10(LEFT)      +
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```

- 4** To further illustrate, use the Tab key to go to Ap: Ap Domain Transaction Control Blocks, then select it by pressing Enter. The + sign in the left column indicates that there is more information related to this selection.

When you press Enter, the contents of the AP: AP Domain Transaction Control Blocks displays.

```

Date: 02/27/2004  DA-CICS          - CICS Dump Contents Table(50)  Time: 10:00:39
Command:                                           Scroll: CSR
V:620 Job:CICSQ202 App:CICSQ202 Code:SYSV Trn:SYST Pgm:DFHSMAR Date:02/26/2004
- Terminal Screen At The Time Of Interrupt
- User Remarks At The Time Of Interrupt
- Summary Of Active - Address Spaces
- Dump Summary
+ Aitm: Auto-install Model Manager - Control Blocks
- Ap: Ap Domain Transaction Summary
- Ap: Ap Domain Transaction Control Blocks
  Tca.00004 0005c080 Task Control Area (user Area)
  Sys_tca.00004 0005c180 Task Control Area (system Area)
  Eis.00004 0005c388 Exec Interface Structure
  Syseib.00004 0005c494 System Exec Interface Block
  Eius.00004 00040008 Exec Interface User Structure
  Eib.00004 000400d0 Exec Interface Block
  Cics24.00004 00040000 Cics Storage Below 16mb
  Tca.00005 0005c680 Task Control Area (user Area)
  Sys_tca.00005 0005c780 Task Control Area (system Area)
  Eis.00005 0005c988 Exec Interface Structure
  Syseib.00005 0005ca94 System Exec Interface Block
  Eius.00005 00046008 Exec Interface User Structure
PF1(HELP) PF3(END) PF5(ECB) PF6(PRINT) PF7(UP) PF8(DOWN) PF10(LEFT)      +
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```

- Use the Tab key to navigate to Tca.00004 0005c080 Task Control Area (user Area) and press Enter to display the CICS Dump Text Display (65) panel.

```

Date: 02/27/2004  DA-CICS          - CICS Dump Text Display(65)  Time: 10:07:40
Command:
Tca.00004 0005c080 Task Control Area (user Area)
00000000 0005C180 00000000 00000000 0004D748 *..A.....P.* 0005C080
          0E9E34A0 00000000 00000000 00000000 *.....*
00000020 00000000 0000004C 00000000 00000000 *.....<.....* 0005C0A0
          00000000 8ED5EC9E 00000000 00000000 *.....N.....*
00000040 00000000 00000000 00000000 00000000 *.....* 0005C0C0
          00000000 00000000 00000000 00000000 *.....*
00000060 Lines - Same As Above 0005C0E0

000000C0 00000000 00000000 00000000 C5F30200 *.....E3..* 0005C140
          00000000 00000000 00000000 8004DF70 *.....*
000000E0 00000000 00000000 00000000 008B5000 *.....* 0005C160
          00000000 00000000 00000000 00000000 *.....*

PF1(HELP) PF2(FMT) PF3(END) PF4(DSO) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2004 by SERENA Software, Inc.
    
```

- The display shows a hexadecimal representation of the control block or storage area. To see additional information, scroll to the right with the PF11 key and to the left with the PF10 key. Notice that the DSO command is assigned to the PF4 key.
- To display storage ownership for the address on which you positioned the cursor, navigate to address 0005c180, in this example, and press the PF4 (DSO) key.

```

Date: 02/27/2004  DA-CICS          - Storage Ownership Display(62) Time: 10:28:35
Command:

Target storage address: 0005C180

      Owner Identification  ----- Storage Identification -----
      Tran Task#  TCA Addr   Start   End   Length   Usage
      ----
      --- Owned by CICS ---  0005C000 0005C02F 00000030 Qph.ap_tca24
                                0005C030 0005C07F 0000004F --- Not in dump ---
Target=> CSSY 00004 0005C080 0005C080 0005C17F 00000100 Tca.00004
          CSSY 00004 0005C080 0005C180 0005C387 00000208 Sys_tca.00004
          CSSY 00004 0005C080 0005C388 0005C48B 00000104 Eis.00004
                                0005C48C 0005C493 00000007 --- Not in dump ---
          CSSY 00004 0005C080 0005C494 0005C4E8 00000055 Syseib.00004

PF3(END)
(c) Copyright 1994-2004 by SERENA Software, Inc.
    
```

The target storage address displays at the top of the screen. (You can display another storage address by typing over this address.) Target => in the left column of the screen indicates which of the displayed storage segments contains the input target address.

**NOTE** If DSO encounters an error while building the display screen, the error indicator displays in the left column in the format *Err xx =>* where *xx* is the error code.

The remaining columns of this panel are divided into two sections:

- Owner Identification – The owner of the storage block
- Storage Identification – The range of the storage block

### **Owner Identification**

- Transaction name (CSSY) of the storage owner (in this case, the storage owner is CICS)
- The transaction number (assigned by CICS)
- TCA address of the transaction

### **Storage Identification**

- The hexadecimal starting address of the storage block
- The hexadecimal ending address of the storage block
- The hexadecimal length of the storage block
- An EBCDIC value (if available) that identifies the use of the storage

## **Displaying Storage Blocks**

To view a storage block, use the point-and-shoot feature. Place the cursor on the TCA address or on the starting address (or the ending address) of the storage block and press

Enter. This display shows the storage block when you select the starting address of 0005c180.

```

Date: 02/27/2004  DA-CICS          - CICS Dump Text Display(65)  Time: 11:00:14
Command:                                               Scroll: CSR
Sys_tca.00004 0005c180 Task Control Area (system Area)
00000000 00000000 00000000 00000000 00000000 *.....* 0005C180
                0000004C 14A30D7C 0000006C 00000000 *...<.t.@...%...*
00000020 00000000 00000000 00000000 00000000 *.....* 0005C1A0
                00000000 00000000 00000000 00000000 *.....*
00000040 Lines - Same As Above                                0005C1C0

00000080 00000000 0005C4EC 00000000 00000000 *.....D.....* 0005C200
                0005C388 00000000 00040128 000403E0 *..Ch.....\*
000000A0 00000000 8004D100 00000000 00000000 *.....J.....* 0005C220
                C3E2E2E8 00000000 00000000 00000000 *CSSY.....*
000000C0 00000000 C3E2E2E8 00000000 00000000 *...CSSY.....* 0005C240
                00000000 00000000 00000000 00000000 *.....*
000000E0 00000000 00000000 00000000 00000000 *.....* 0005C260
                00000000 00000000 00000000 00000000 *.....*
00000100 00000000 00000000 00000000 00000000 *.....* 0005C280
                00000000 00000000 00000000 00000000 *.....*
00000120 00000000 00000000 00000000 00000000 *.....* 0005C2A0
                8004D500 00000000 00000000 0005C574 *..N.....E.*

PF1(HELP) PF2(FMT) PF3(END) PF4(DSO) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
6086,Address: 0005C180 located.
    
```

The message at the bottom of the screen tells you that the system located the address for the storage block you selected.



## Chapter 5

# DB2 Option

The DB2 option is a separately licensed feature of StarTool DA CICS. It assists in the analysis of CICS transaction dumps by providing access to DB2 related diagnostics information.

Abnormal termination of a CICS transaction can occur as a result of a DB2 SQL call (EXEC SQL) or following a SQL call. In either case, the StarTool DA CICS DB2 Interface (hereinafter referred to as the DB2 Interface), preserves the DB2 application environment at the time of the last SQL call.

To provide access to the DB2 call parameters following an unsuccessful SQL call, terminate the CICS transaction with a CICS Abend. Do this with the EXEC SQL WHENEVER clause.

To access DB2 diagnostic data, choose Option 8 from the Master Menu:

```
Date: 06/10/2011          DA-CICS          - Master Menu(55)          Time: 13:50:04
Command:
      TRAN: ESCO  CODE: ASRA (S0C7)  PROGRAM: ESPUSACO  OFFSET: 0037EA

1> Screen At Time Of Interrupt          6> Dump Table Of Contents
2> Dump Diagnostic Data                 7> Source Listing Management
3> Trace Table                          8> DB2/SQL Data
4> CICS Program Call Summary           9> IMS/DLI Data
5> Control Blocks                      10> ChangeMan ZMF data

PF1(HELP) PF3(END)
(c) Copyright 1994-2011 by SERENA Software, Inc.
```

## DB2 Diagnostic Panels

The first panel to display after choosing option 8 is a menu of DB2/SQL information:

```
Date: 06/10/2011   DA-CICS       - CICS Dump Contents Table(50)   Time: 13:52:07
Command:                                               Scroll: CSR
V:670 Job:CICSD227 App:CICSD227 Code:ASRA Trn:ESCO Pgm:ESPUSACO Date:05/06/2011
- SQL Call Summary
- Plan Information
- Package Information
- SQL Statement
- Host Variables
```

```
PF1(HELP) PF3(END) PF5(ECB) PF6(PRINT) PF7(UP) PF8(DOWN) PF10(LEFT)      +
(c) Copyright 1994-2011 by SERENA Software, Inc.
```

An explanation of each option follows.

### SQL CALL Summary

Select SQL CALL Summary from the CICS Dump Contents Table to display the following screen. This example shows a user abend issued in response to a negative SQL return code:

```
Date: 03/15/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 15:46:08
Command:                                               Scroll: PAGE
```

```
----- S Q L   S T A T E M E N T S -----
```

```
SQL Call Summary
```

```
DB2 Subsystem Name(Q101)           Plan Name(ESPYD2PL)
Program Name(ESPUSACC)             Statement Number(204)
SQL Timestamp(16DEFEE0069ACD4A)    Address of SQL ParmList(00008CE8)
```

```
DSNT400I SQLCODE = -818, ERROR: THE PRECOMPILER-GENERATED TIMESTAMP
169C2A0B06748E2C IN THE LOAD MODULE IS DIFFERENT FROM THE BIND
TIMESTAMP 169C296E09A2D6A6 BUILT FROM THE DBRM ESPUSACC
```

```
DSNT418I SQLSTATE = 51003 SQLSTATE RETURN CODE
DSNT418I SQLERRP = DSNXEPM SQL PROCEDURE DETECTING ERROR
DSNT418I SQLERRD = -200 0 0 -1 0 0 SQL DIAGNOSTIC INFORMATION
DSNT418I SQLERRD = X'FFFFFF38' X'00000000' X'00000000'
X'FFFFFFF' X'00000000' X'00000000' SQL DIAGNOSTIC INFORMATION
```

The following example shows an application that abended several instructions after a successful SQL call:

```
Date: 03/15/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 15:46:08
Command:                                               Scroll: PAGE
SQL Call Summary
```

```
DB2 Subsystem Name(Q101)           Plan Name(ESPUSACO)
Program Name(ESPUSACO)             Statement Number(228)
SQL Timestamp(16E1D8141C1FEA7A)   Address of TIE(0E77A190)
Address of SQL Call(8F028F40)      Address of SQL Parmlist(8E509308)
```

```
DSNT400I  SQLCODE = 000,  SUCCESSFUL EXECUTION
```

```
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN)  +
(c) Copyright 1994-2004 by SERENA Software, Inc.
```

Field Definitions	
DB2 Subsystem Name	JES Subsystem Vector Table Entry name for DB2 subsystem attached to the CICS address space at time of transaction abend. It also identifies the attached DB2 subsystem at the time of StarTool DA CICS batch processing of transaction abend. Variable obtained from the Task Interface Element (TIE) for the DB2 Resource Manager.
Plan Name	Identification of the DB2 plan bound to the application program in control at the time of transaction abend. Variable obtained from the CRCTPIID field in the RCT entry associated with the thread used by the abending transaction.
Program Name	Identification of the DBRM library member that contains the statement associated with the last SQL call at time of transaction abend. Variable obtained from the SQL call parameter list created by the DB2 pre-compiler.
Statement Number	Identification of the SQL statement associated with the last SQL call at time of transaction abend. Variable obtained from the SQL call parameter list created by the DB2 pre-compiler.
SQL Timestamp	Identification of the iteration of the DBRM library member that contains the statement associated with the last SQL call at time of transaction abend. Variable obtained from the SQL call parameter list created by the DB2 pre-compiler.
Address of TIE	Handle of the CICS Task Interface Element for the DB2 Resource Manager.
Address of SQL Call	Handle of the last SQL call at time of transaction abend. Use this field to point-and-shoot to the actual SQL statement within the COBOL source.

Field Definitions	
Address of SQL Plist	Handle of the last SQL call parameter list passed to the DB2 Resource Manager at time of transaction abend.
SQL Communication Area	Formatted display of the SQLCA provided by the DB2 module DSNTIAR. If the DB2 Resource Manager Interface abnormally terminated during processing of an SQL call, a warning message displays instead because the SQLCA is not available.

## Plan Information

Select Plan Information from the CICS Dump Contents Table to display the following screen. This panel provides the variable name displayed by StarTool DA CICS and the corresponding column name from the SYSIBM.SYSPLAN table.

Date: 03/15/2004	DA-CICS	- CICS Dump Text Display(60)	Time: 16:01:50
Command:			Scroll: PAGE
Plan Information			
Plan(ESPUSAC0)	Creator(SRADHAN)		
Bound by(SRADHAN)	Qualifier(SRADHAN)		
Bind Date(2004-01-03)	Bind Time(17.19.39.618266)		
Validate(Run Time)	Isolation(Cursor Stability)		
Valid(Yes)	Operative(Yes)		
Acquire(Use)	Release(Commit)		
Current Data(Yes)	Defer Prepare(No)		
Current Server()	Degree(1)		
SQL Rules(DB2)	Disconnect(Explicit)		
Group Member()	Dynamic Rules(Run)		
Optimize Variable Input Values(No)	Keep Dynamic(NO)		
PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +			
(c) Copyright 1994-2004 by SERENA Software, Inc.			

The following variable definitions are from the *IBM DB2 SQL Reference* manual, Appendix D, DB2 Catalog Tables.

Field Definitions	
Plan - NAME	Name of the application plan.
Creator - CREATOR	Authorization ID of the owner of the table, view, or alias.
Bound by - BOUNDBY	Primary authorization ID of the binder of the plan.
Qualifier - QUALIFIER	Implicit qualifier for the unqualified table, view, index, and alias names in the static SQL statements of the plan.
Bind Date - BOUNDTS	The date on which the plan was last bound, in the form yymmdd.
Bind Time - BOUNDTS	Time of the BIND in the form hhmmssst.

<b>Field Definitions</b>	
Validate - VALIDATE	Whether or not validity checking can be deferred until run time: <ul style="list-style-type: none"> <li>■ B - All checking must be performed during BIND.</li> <li>■ R - Validation is done at run time for tables, views, and privileges that do not exist at bind time.</li> </ul>
Operative - OPERATIVE	Whether or not the application plan can be allocated: <ul style="list-style-type: none"> <li>■ N - No; an explicit BIND or REBIND is required before the plan can be allocated.</li> <li>■ Y - Yes.</li> </ul>
Acquire - ACQUIRE	When resources are acquired: <ul style="list-style-type: none"> <li>■ A - At allocation.</li> <li>■ U - At first use.</li> </ul>
Release - RELEASE	When resources are released: <ul style="list-style-type: none"> <li>■ C - At commit.</li> <li>■ D - At deallocation.</li> </ul>
Current Data - EXPREDICATE	Indicates the CURRENTDATA option when the plan was bound or rebound: <ul style="list-style-type: none"> <li>■ B - Data currency is not required for ambiguous cursors. Allow blocking for ambiguous cursors.</li> <li>■ C - Data currency is required for ambiguous cursors. Inhibit blocking for ambiguous cursors.</li> <li>■ N - Blocking is inhibited for ambiguous cursors, but the plan was created before the CURRENTDATA option was available.</li> </ul>
Defer Prepare - DEFERPREP	Whether or not the package was last bound with the DEFER(PREPARE) option: <ul style="list-style-type: none"> <li>■ N - No</li> <li>■ Y - Yes</li> </ul>
Current Server - CURRENTSERVER	Location name specified with the CURRENTSERVER option when the plan was last bound. Blank if none was specified, implying that the first server is the local DB2 subsystem.
Degree - DEGREE	The DEGREE option used when the plan was last bound: <ul style="list-style-type: none"> <li>■ ANY - DEGREE(ANY)</li> <li>■ 1 or blank - DEGREE(1). Blank if the plan was migrated.</li> </ul>
SQL Rules - SQLRULES	The SQLRULES option used when the plan was last bound: <ul style="list-style-type: none"> <li>■ D or blank - SQLRULES(DB2).</li> <li>■ S - SQLRULES(STD).</li> <li>■ blank - A migrated plan.</li> </ul>
Disconnect - DISCONNECT	The DISCONNECT option used when the plan was last bound: <ul style="list-style-type: none"> <li>■ E or blank - DISCONNECT (EXPLICIT)</li> <li>■ A - DISCONNECT (AUTOMATIC)</li> <li>■ C - ISCONNECT (CONDITIONAL)</li> <li>■ blank - a migrated plan.</li> </ul>

Field Definitions	
Group Member - GROUP_MEMBER	The DB2 data sharing member name of the DB2 subsystem that performed the most recent bind. This column is blank if the DB2 subsystem was not in a DB2 data sharing environment when the bind was performed.
Dynamic Rules - DYNAMICRULES	<ul style="list-style-type: none"> <li>■ B - Dynamic SQL statements are handled like static SQL statements at run time.</li> <li>■ blank - Dynamic SQL statements are handled like dynamic SQL statements at run time.</li> </ul>
Optimize Variable Input Values - REOPTVAR	Whether or not the access path is determined again at execution time using input variable values.
Keep Dynamic - KEEPDPYDYNAMIC	Whether or not prepared dynamic statements are to be purged at each commit point.: <ul style="list-style-type: none"> <li>■ N - The bind option is KEEPDPYDYNAMIC(NO). Prepared dynamic SQL statements are destroyed at commit or rollback.</li> <li>■ Y - The bind option is KEEPDPYDYNAMIC(YES). Prepared dynamic SQL statements are kept past commit or rollback.</li> </ul>

## Package Information

Select Package Information from the CICS Dump Contents Table to display the following screen. This panel provides the variable name displayed by StarTool DA CICS and the corresponding column name from the SYSIBM.SYSPACKAGE table.

**NOTE** This section is not available when the abending program's DBRM is bound directly to the plan.

```

Date: 03/15/2004   DA-CICS   - CICS Dump Text Display(60)   Time: 13:58:17
Command:                                                Scroll: CSR
Package Information

Package(ESPUSACO)                Collection Id(ESPYD2)
Creator(SRADHAN)                 Owner(SRADHAN)
Creation Date(2001-05-17)        Creation Time(14.17.19.148194)
Bind Date(2004-01-25)           Bind Time(11.03.21.498853)
Pre-compile Date(2004-01-23)    Pre-compile Time(11.21.47.233237)
Qualifier(SRADHAN)              Valid(Yes)
Operative(Yes)                  Validate(Run Time)
Isolation(Cursor Stability)      Release()
Quote(Apostrophe)               Comma(Period)
Host Language(IBM COBOL)         Katakana(No)
Mixed(No)                        Dec31(No)
Defer Prepare(Yes)              SQL Error(Nopackage)
Source(DBRM)                    Degree(1)
Version()
DBRM Library(STRQA.DA550.EDB2.DBRLIB)
Group Member()                  Dynamic Rules(Bind)
Optimize Variable Input Values(No)  Keep Dynamic(NO)
Defer Prepare()

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2004 by SERENA Software, Inc.

```

The following variable definitions are from the *IBM DB2 SQL Reference* manual, Appendix D, DB2 Catalog Tables.

<b>Field Definitions</b>	
Package Name - NAME	Name of the package.
Collection Id - COLLID	Name of the package collection.
Creator - CREATOR	Authorization ID of the creator of the package version.
Owner - OWNER	Authorization ID of the package owner.
Creation Date - TIMESTAMP	Date/timestamp indicating when the package was created.
Creation Time - TIMESTAMP	Date/timestamp indicating when the package was created.
Pre-Compile Date - PCTIMESTAMP	Date (and time) the application program was precompiled, or 0001-01-01-00.00.00.000000 if the LEVEL precompiler option was used, or if the package came from a non-DB2 location.
Pre-Compile Time - PCTIMESTAMP	Time (and date) the application program was precompiled, or 0001-01-01-00.00.00.000000 if the LEVEL precompiler option was used, or if the package came from a non-DB2 location.
Qualifier - QUALIFIER	Implicit qualifier for the unqualified table, view, index, and alias names in the static SQL statements of the package.
Valid - VALID	Whether or not the package is valid: <ul style="list-style-type: none"> <li>■ A - The description of the table or base table of a view referenced by the package was changed by the ALTER TABLE statement. The change did not require the invalidation of the package.</li> <li>■ H - The description of the table or base table of a view referenced by the package was changed by the ALTER TABLE statement. The change invalidates the package for a DB2 release prior to Version 5.</li> <li>■ N - No</li> <li>■ Y - Yes</li> </ul>
Operative - OPERATIVE	Whether or not the package can be allocated: <ul style="list-style-type: none"> <li>■ N - No; an explicit BIND or REBIND is required before the package can be allocated.</li> <li>■ Y - Yes</li> </ul>
Validate - VALIDATE	Whether or not validity checking can be deferred until run time: <ul style="list-style-type: none"> <li>■ B - All checking must be performed at bind time.</li> <li>■ R - Validation is done at run time for tables, views, and privileges that do not exist at bind time.</li> </ul>

<b>Field Definitions</b>	
Isolation - ISOLATION	<p>Isolation level when the package was last bound or rebound:</p> <ul style="list-style-type: none"> <li>■ R - RR (repeatable read)</li> <li>■ T - RS (read stability)</li> <li>■ S - CS (cursor stability)</li> <li>■ U - UR (uncommitted read)</li> <li>■ blank - Not specified, and therefore at the level specified for the plan executing the package</li> </ul>
Comma - COMMA	<p>Decimal point representation for SQL statements in package:</p> <ul style="list-style-type: none"> <li>■ N - Period</li> <li>■ Y - Comma</li> </ul>
Quote - QUOTE	<p>SQL string delimiter for SQL statements in the package:</p> <ul style="list-style-type: none"> <li>■ N - Apostrophe</li> <li>■ Y - Quotation mark</li> </ul>
Host Language - HOSTLANG	<p>Host language for the package's DBRM:</p> <ul style="list-style-type: none"> <li>■ B - Assembler language.</li> <li>■ C - OS/VS COBOL</li> <li>■ D - C</li> <li>■ F - FORTRAN</li> <li>■ P - PL/I</li> <li>■ 2 - VS COBOL II or IBM COBOL Release 1 (formerly called COBOL/370)</li> <li>■ 3 - IBM COBOL (Release 2 or subsequent releases)</li> <li>■ 4 - C++</li> <li>■ blank - For remotely bound packages</li> </ul>
Mixed - MIXED	<p>Indicates if mixed data was in effect when the package's program was precompiled:</p> <ul style="list-style-type: none"> <li>■ N - No</li> <li>■ Y - Yes</li> </ul>
Dec31 - DEC31	<p>Indicates whether or not DEC31 was in effect when the package's program was precompiled (for more on when DEC31 is in effect, see "Arithmetic with Two Decimal Operands" in topic 3.14.6) in DB2 SQL Reference:</p> <ul style="list-style-type: none"> <li>■ N - No</li> <li>■ Y - Yes</li> </ul>

Field Definitions	
Defer Prepare - DEFERPREP	<p>Indicates the CURRENTDATA option when the package was bound or rebound:</p> <ul style="list-style-type: none"> <li>■ A – Data currency is required for all cursors. Inhibit blocking for all cursors.</li> <li>■ B – Data currency is not required for ambiguous cursors.</li> <li>■ C – Data currency is required for ambiguous cursors.</li> <li>■ blank – The package was created before the CURRENTDATA option was available.</li> </ul>
Degree - DEGREE	<p>The DEGREE option used when the package was last bound:</p> <ul style="list-style-type: none"> <li>■ ANY – DEGREE(ANY)</li> <li>■ 1 or blank – DEGREE(1). Blank if the package was migrated.</li> </ul>
Version - VERSION	Version identifier for the package
DBRM Library - PDSNAME	<p>For a locally bound package, the name of the PDS (library) in which the package's DBRM is a member. For a locally copied package, the value in SYSPACKAGE.PDSNAME for the source package. Otherwise, the product signature of the bind requester followed by one of the following:</p> <ul style="list-style-type: none"> <li>■ The requester's location name if the product is DB2.</li> <li>■ Otherwise, the requester's LU name enclosed in angle brackets; for example, "&lt;LUSQLDS&gt;."</li> </ul>
Group Member - GROUP_MEMBER	<p>The DB2 data sharing member name of the DB2 subsystem that performed the most recent bind. This column is blank if the DB2 subsystem was not in a DB2 data sharing environment when the bind was performed.</p>
Dynamic Rules - DYNAMICRULES	<ul style="list-style-type: none"> <li>■ B – Dynamic SQL statements are handled like static SQL statements at run time.</li> <li>■ R – Dynamic SQL statements are handled like dynamic SQL statements at run time.</li> <li>■ blank – DYNAMICRULES is not specified for the package. The package uses the DYNAMICRULES value of the plan to which the package is appended at execution time.</li> </ul>
Optimize Input Variable Values - REOPTVAR	<p>Whether or not the access path is determined again at execution time using input variable values:</p> <ul style="list-style-type: none"> <li>■ N – Bind option NOREOPT(VARS) indicates that the access path is determined at bind time.</li> <li>■ Y – Bind option REOPT(VARS) indicates that the access path is determined at execution time for SQL statements with variable values.</li> </ul>

Field Definitions	
Keep Dynamic - KEEPDPYDYNAMIC	Whether or not prepared dynamic statements are to be purged at each commit point: <ul style="list-style-type: none"> <li>■ N - The bind option is KEEPDPYDYNAMIC(NO). Prepared dynamic SQL statements are destroyed at commit.</li> <li>■ Y - The bind option is KEEPDPYDYNAMIC(YES). Prepared dynamic SQL statements are kept past commit.</li> </ul>
Defer Prepare - DEFERPREPARE	Whether or not PREPARE processing is deferred until OPEN is executed: <ul style="list-style-type: none"> <li>■ N - Bind option NODEFER(PREPARE) indicates that PREPARE processing is not deferred until OPEN is executed.</li> <li>■ Y - Bind option DEFER(PREPARE) indicates that PREPARE processing is deferred until OPEN is executed.</li> <li>■ blank - Bind option not specified for the package. It is inherited from the plan.</li> </ul>

### DBRM Information

This section is not available when the abending program's DBRM is bound as a package. Otherwise, it displays when you select Package Information from the CICS Dump Contents Table. It provides the variable name displayed by StarTool DA CICS and the corresponding column name from the SYSIBM.SYSDBRM table.

The following variable definitions are from the *IBM DB2 SQL Reference* manual, Appendix D, DB2 Catalog Tables.

Field Definitions	
DBRM - NAME	Name of the DBRM.
Creator - PLCREATOR	Authorization ID of the owner of the application plan.
Pre-Compile Date - PRECOMPTIME	Time of precompilation in the form hhmmssst. If the LEVEL precompiler option is used, then this value does not represent the precompile time.
Pre-Compile Time - PRECOMPDATE	Date of precompilation in the form yymmdd. If the LEVEL precompiler option is used, then this value does not represent the precompile date.
Quote - QUOTE	SQL string delimiter for the SQL statements in the DBRM: <ul style="list-style-type: none"> <li>■ N - Apostrophe</li> <li>■ Y - Quotation mark</li> </ul>
Comma - COMMA	Decimal point representation for SQL statements in the DBRM: <ul style="list-style-type: none"> <li>■ N - period</li> <li>■ Y - comma</li> </ul>

Field Definitions	
Host Language - HOSTLANG	The host language used: <ul style="list-style-type: none"> <li>■ B - assembler language</li> <li>■ C - COBOL</li> <li>■ D - C</li> <li>■ F - FORTRAN</li> <li>■ P - PL/I</li> <li>■ 2 - VS COBOL II</li> </ul>
Katakana - CHARSET	Indicates whether or not the system CCSID for SBCS data was 290 (Katakana) when the program was precompiled: <ul style="list-style-type: none"> <li>■ A - No</li> <li>■ K - Yes</li> </ul>
Mixed - MIXED	Indicates if mixed data was in effect when the application program was precompiled (for more on when mixed data is in effect, see "Character Strings" in topic 3.7.1): <ul style="list-style-type: none"> <li>■ N - No</li> <li>■ Y - Yes</li> </ul>
Dec31 - DEC31	Indicates whether DEC31 was in effect when the program was precompiled (for more on when DEC31 is in effect, see "Arithmetic with Two Decimal Operands" in topic 3.14.6): <ul style="list-style-type: none"> <li>■ blank - No</li> <li>■ Y - Yes</li> </ul>
Version - VERSION	Version identifier for the DBRM.
DBRM Library - PDSNAME	Name of the partitioned data set of which the DBRM is a member.

## SQL Statement

Select SQL Statement from the CICS Dump Contents Table to display the following screen. This section shows the last SQL statement that was issued.

```

Date: 03/15/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 16:06:22
Command:
SQL Statement
                                Scroll: PAGE

  FETCH DT
  USING
  DESCRIPTOR : WS-SQLDA

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
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```

## Host Variables

Select Host Variables from the CICS Dump Contents Table to display the following screen. This section contains the attributes of the host variables associated with the last SQL call at time of transaction abend.

```

Date: 03/15/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 16:07:08
Command:
Host Variables
                                Scroll: PAGE

SQLDA(WS-SQLDA)

Name(LOCATION)
Type(CHAR)                Length(16)                Address(0E50B7E7)
Value()

Name(COLLID)
Type(CHAR)                Length(18)                Address(0E50B7F7)
Value(ESPYD2)

Name(NAME)
Type(CHAR)                Length(8)                 Address(0E50B809)
Value(ESPUAC0)

Name(CONTOKEN)
Type(CHAR)                Length(8)                 Address(0E50B811)
Value(x"16E1D8141C1FEA7A")

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2004 by SERENA Software, Inc.

```

Field Definitions	
<b>Name</b>	Name of host variable. Obtained from the SQL statement in SYSIBM.SYSSTMT (if a bound DBRM) or SYSIBM.SYSPACKSTMT (if a package) associated with the last SQL call at time of transaction abend.
<b>Type</b>	Type of host variable: character, packed, or binary. Obtained from the last SQL call parameter list passed to the DB2 Resource Manager at time of transaction abend. Parameter list is created by the DB2 pre-compiler.
<b>Length</b>	Length of host variable. Obtained from the last SQL call parameter list passed to the DB2 Resource Manager at time of transaction abend. Parameter list is created by the DB2 pre-compiler.
<b>Address</b>	Address of host variable. Obtained from the last SQL call parameter list passed to the DB2 Resource Manager at time of transaction abend. Parameter list is created by the DB2 pre-compiler.
<b>Value</b>	Value of host variable. Obtained from the host application program working storage at time of transaction abend. For character type host variables, a maximum of seventy-two characters are displayed. Using the StarTool DA CICS Point-and-Shoot feature on the host variable address, the complete value can be displayed.

## Chapter 6

# IMS Option

The IMS option is a separately licensed feature of StarTool DA CICS. It provides access to IMS related diagnostic information to assist in the analysis of CICS transaction dumps.

## Information Displayed

The following table lists the type of information displayed:

Category	Details
Transaction Identification	<ul style="list-style-type: none"><li>■ Task Number</li><li>■ TCA Address</li></ul>
DL/I Summary	<ul style="list-style-type: none"><li>■ Request Date and Time</li><li>■ DL/I Interface Type ("EXEC DL/I" or "Call Level")</li><li>■ Interface Language</li><li>■ PSB Name</li><li>■ DBCTL ID</li></ul>
User Interface Block (UIB) Summary	<ul style="list-style-type: none"><li>■ UIB Address</li><li>■ PCB Address List</li><li>■ Return Code</li></ul>
PCB Summary (for up to ten PCBs)	<ul style="list-style-type: none"><li>■ PCB Address</li><li>■ DBD Name</li><li>■ Processing Option</li><li>■ Status Code</li><li>■ Segment Information</li><li>■ Key Feedback Data</li></ul>
I/O Area Summary	<ul style="list-style-type: none"><li>■ Last Record Read/Written</li></ul>
Application Parameter List Information	<ul style="list-style-type: none"><li>■ Parameter List Address</li><li>■ Parameter Summary</li></ul>

## Viewing IMS Diagnostic Data

Choose Option 9 from the Master Menu to access IMS/DLI Data.

```

Date: 06/10/2011      DA-CICS      - Master Menu(55)      Time: 13:44:58
Command:
      TRAN: ESDL  CODE: ASRA (S0C1)  PROGRAM: DFHSAM40  OFFSET: 00028A

1> Screen At Time Of Interrupt      6> Dump Table Of Contents
2> Dump Diagnostic Data             7> Source Listing Management
3> Trace Table                      8> DB2/SQL Data
4> CICS Program Call Summary        9> IMS/DLI Data
5> Control Blocks                  10> ChangeMan ZMF data

```

The following example shows the first screen that appears.

**NOTE** For an EXEC DLI interface type, the interface language cannot be identified - it always displays Assembler. A Call Level interface type displays the actual interface language.

```

Date: 03/15/2004      DA-CICS      - CICS Dump Text Display(60)  Time: 17:05:24
Command:
IMS/DLI Diagnostic Data
      Scroll: CSR

Transaction identification
- Transaction task number : 00000370.
- Transaction TCA address : X(0005B680).

DL/I summary
- Request date and time   : 2002/08/05 at 16:36:43.69.
- DL/I interface type    : "EXEC DLI" request.
- Interface language     : Assembler.
- PSB name               : DFSIVP6.
- DBCTL ID               : Q111.

User Interface Block (UIB) summary
- UIB address            : X(00067010) (8 bytes in length).
- PCB address list      : X(0003B804).
- Return code           : X(0000) C(..).

```

Press PF8 to scroll through the diagnostic data.



The following screen displays parameter list information and some usage notes.

```

Date: 03/15/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 17:18:27
Command:
IMS/DLI Diagnostic Data                               Scroll: CSR

Application parameter list section
- Parameter list address : X(0E672180).
- Parameter summary      : (Only 8 bytes per parameter are displayed).
  --Address--  ----- Parameter Data -----
- X(0E672120)  X(00000000000000008) C(.....)
- X(0DF7B68)  X(C7C8D54404040408) C(GHN   )
- X(0003B8C4) X(C9E5D7CC2F140408) C(IVPDB1 )
- X(0E509350) X(D3C1E2EF14040408) C(LAST1  )

Notes on application parameter list format :

- The "parameter list" address points to a list of parameter addresses.
  A maximum of 18 parameters is supported.
- For PL/I applications, a parameter address points to a "locator-descriptor"
  pair.
  - The "locator" (4 bytes in length) contains the data address.
  - The "descriptor" (2 bytes in length) contains the data length.
  - The first parameter may or may not contain a parameter count.
- For non-PL/I applications, a parameter address points directly to data.
- For DL/I "function shipped from another region" requests, a parameter-list
  address points to a copy of the first two parameters only.

```

## Viewing Storage Locations

You can go directly to the storage for an item that displays a hexadecimal address by using the point-and-shoot feature. Using the following screen as an example, place the cursor on the first byte of the Transaction TCA Address, X(0005B680), and press Enter.

```

Date: 03/15/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 17:05:24
Command:
IMS/DLI Diagnostic Data                               Scroll: CSR

Transaction identification
- Transaction task number : 00000370.
- Transaction TCA address : X(0005B680).

DL/I summary
- Request date and time   : 2002/08/05 at 16:36:43.69.
- DL/I interface type    : "EXEC DLI" request.
- Interface language     : Assembler.
- PSB name               : DFSIVP6.
- DBCTL ID              : Q111.

User Interface Block (UIB) summary
- UIB address            : X(00067010) (8 bytes in length).
- PCB address list      : X(0003B804).
- Return code           : X(0000) C(..).

```

The following screen displays the storage for the Task Control Area (TCA).

```

Date: 08/06/2002   DA-CICS           - CICS Dump Text Display(65)   Time: 16:03:36
Command:                                                Scroll: PAGE
Task Control Area
00000000  00059780 00000001 0E2624B0 0004C648 *..p.....F.* 00059680
                0DBF46A0 0E2CE030 20000000 00000060 *.....-*
00000020  00000000 0000071C 00000000 00000000 *.....* 000596A0
                00000000 8DB706B8 0005E028 CC000030 *.....*
00000040  8E2EA028 0DBF3AC0 8E2EA1AC 000854D8 *.....Q* 000596C0
                0DBF3408 0014005C 0E2CE030 0DBF3408 *.....*
00000060  60000000 0EF08180 C4C3C5E2 C5F2F3F4 *-...0a.DCESE234* 000596E0
                C7C8D550 0001C804 00000000 00000000 *GHN ..H.....*
00000080  C3C14040 40404040 00000000 00000000 *CA .....* 00059700
                00000000 00000000 00000000 00000000 *.....*
000000A0  00000000 00000000 00000000 00000000 *.....* 00059720
                00000000 00000000 00000000 00000000 *.....*
000000C0  E5D7F640 00000000 00000000 00000000 *VP6 .....* 00059740
                00000000 00000000 00000000 8004CE20 *.....*
000000E0  00000000 00000000 00000000 008B6000 *.....-* 00059760
                00000000 00000000 00000000 00000000 *.....*
00000100  00000000 00000000 00000000 00000000 *.....* 00059780
                0000071C 0DAFFD7C 00000056 00000000 *.....*

```

Sometimes a storage location is not available because it may have been reused by either the current transaction or another transaction. In this case, the following message displays:

```
60 Address not in the dump
```

To return to IMS/DLI Diagnostic Data from the storage display, press PF3 (End).

## Viewing Control Blocks with Option 5

You can access storage for all IMS control blocks through Option 5, Control Blocks (see [Control Blocks](#)). The following control blocks are available:

- CICS-DBCTL Global Block
- CICS-DBCTL Control Transaction Data
- CICS-DBCTL Scheduling Block
- CICS-DBCTL Adapter Response Parms
- DL/I Program Communication Blocks
- CICS DL/I User Interface Block



## Chapter 7

# ChangeMan ZMF Option

If StarTool DA intercepts an abending routine that is controlled by ChangeMan ZMF, StarTool DA accesses ChangeMan ZMF and retrieves data for the package that the abending job participates in.

**NOTE** Before you can use this feature, you need to configure ChangeMan ZMF and StarTool DA as described in the *StarTool DA Installation Guide*.

To retrieve information from ChangeMan ZMF for an abended routine:

- 1 Access the Dump Database Contents (40) panel as described in [Chapter 2, "Using the Debug/Viewing Server" on page 21](#).
- 2 Optional. Retrieve the source from ChangeMan ZMF for the abended program by performing the following:
  - a Select a dump.
  - b Type GETSRC (GET SOURCE) on the command line
  - c Press Enter.

StarTool DA extracts the ChangeMan Source Listing and uses it to update the LDB (Language DataBase).

See ["Extracting ChangeMan Source Listings" on page 90](#) for more information.

- 3 Select a dump, then press Enter.

If the dump was a transaction dump, the Master Menu screen displays.

```
Date: 06/10/2011          DA-CICS          - Master Menu(55)          Time: 13:41:34
Command:
      TRAN: ESZ3  CODE: ASRA (S0C7)  PROGRAM: SZDSZMF3  OFFSET: 001624

1> Screen At Time Of Interrupt          6> Dump Table Of Contents
2> Dump Diagnostic Data                 7> Source Listing Management
3> Trace Table                          8> DB2/SQL Data
4> CICS Program Call Summary           9> IMS/DLI Data
5> Control Blocks                      10> ChangeMan ZMF data
```

- 4 Choose **Option 10, ChangeMan ZMF Data** from the Master Menu to view ChangeMan ZMF data.

This displays the main ChangeMan ZMF data screen, where you can choose from the following options:

- [General Package Information Panel](#)
  - [Load Component Information Panel](#)
  - [History Information Panel](#)
- 5 Select one of the options by placing the cursor on the selection line and pressing Enter.

```
Date: 06/10/2011  DA-CICS      - CICS Dump Contents Table(50)  Time: 13:42:19
Command:                                           Scroll: CSR
V:670 Job:CICSD227 App:CICSD227 Code:ASRA Trn:ESZ3 Pgm:SZDSZMF3 Date:05/06/2011
- General Package Information
- Load Component Information
- History Information
```

See the following sections for information on each selection:

- ["General Package Information Panel" on page 86](#)
- ["Load Component Information Panel" on page 88](#)
- ["History Information Panel" on page 89](#)

## General Package Information Panel

The General Package Information panel displays information about the package that contains the component that abended.

To access the General Package Information screen, place the cursor on the General Package Information selection line (on the ChangeMan ZMF Data panel) and press Enter.

```

Date: 07/01/2004   DA-CICS           - CICS Dump Text Display(60)   Time:
                  11:30:02
Command:                                           Scroll: PAGE
General Package Information
      PACKAGE ID: STDA000004   STATUS: DEV           INSTALL DATE: 20041215
COMPLEX/SUPER ID: N/A           STATUS:
PACKAGE TITLE
====> STDA : Test Package
APPLICATION                ====> STDA
REQUESTER'S NAME           ====> User
REQUESTER'S PHONE         ====> 5555
WORK REQUEST ID            ====>
DEPARTMENT                 ====> QA
PACKAGE LEVEL              ====> 1                (1-Simple, 2-Complex,
                                                    (3-Super, 4-Participating)
PACKAGE TYPE                ====> PLANNED          (Planned or Unplanned)
PACKAGE TIME SPAN          ====> PERM             (Permanent or Temporary)
UNPLANNED REASON CODE     ====>
TEMPORARY CHANGE DURATION ====>
    
```

This table describes the fields on the General Package Information panel.

Field	Description
Package Title	The title of the change package.
Application	The application associated with the change package.
Requester's Name	The name of the person who created the package.
Requester's Phone	The telephone number, or extension, of the person who created the package.
Work Request ID	The Work Request ID.
Department	The requester's department.

Field	Description
Package Level	<p>Can be one of the following:</p> <p><b>1 (Simple).</b> The change package contains a change that is unrelated to any other change package. This level does not affect any other application, nor does it require changes to software or operational procedures.</p> <p><b>2 (Complex).</b> The parent for two or more participating change packages that have interdependent changes to software or operational procedures. Complex change packages contain only control, general information, and a list of participating packages. There are no staging libraries associated with super/complex change packages. Remote sites and the installation dates for each site are tracked in the participating change packages.</p> <p><b>3 (Super).</b> The parent for two or more participating change packages that contain major changes to several applications. Super change packages contain only control, general information, and a list of the participating packages. There are no staging libraries associated with super/complex change packages. Remote sites and the installation dates for each site are tracked in the participating change packages.</p> <p><b>4 (Participating).</b> The change package is related to one or more other participating change packages.</p>
Package Type	<p>Planned – Indicates that the packages are scheduled changes that follow the established application rules.</p> <p>Unplanned – Indicates that the packages are unscheduled changes, possibly an emergency fix. Emergency packages bypass some of the application rules and have a separate approval list.</p>
Package Time Span	<p>Permanent – Indicates that the packages are scheduled changes that update baseline or production libraries. Permanent changes are either planned or unplanned. This is the normal way to install changes.</p> <p>Temporary – Changes that run for a predetermined length of time. Once that time expires, ChangeMan ZMF automatically deletes the change. Temporary changes do not update baseline or production libraries. These changes are installed into a static override library. Temporary changes are either planned or unplanned.</p>
Unplanned Reason Code	The reason for the package being unplanned.
Temporary Change Duration	The number of days that the change is to remain in effect.

## Load Component Information Panel

The Load Component Information panel displays ChangeMan ZMF information about the component that abended, such as source module name and last time the code was altered.

To access the Load Component Information panel, place the cursor on the Load Component Information selection line (on the ChangeMan ZMF Data panel), and press Enter.

```

Date: 07/01/2004   DA-CICS       - CICS Dump Text Display(60)   Time:
      11:32:07
Command:                                           Scroll: PAGE
Load Component Information

      PACKAGE ID: STDA000004       STATUS: DEV       INSTALL DATE: 20041215

      SOURCE           LOAD
NAME   TYPE   NAME   TYPE STATUS   PROMOTION   CHANGED   ID
LCRIDEMO SRC   LCRIDEMO LOD   ACTIVE           20040630 162517 USER18

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +

```

This table describes the fields on the Load Component Information panel.

Field	Description
Package ID	Displays the package ID for the package that contains the component which abended.
Status	Displays the status of the package.
Install Date	Displays the installation date for this package.
Source Name/Type	Displays the name and type of the source for the component that abended.
Load Name/Type	Displays the name and type of the load module for the component that abended.
Status	Displays the status of the component.
Promotion	Displays the promotion level and nickname for the promotion site.
Changed	Displays the date and time of the last edit to change to the component.
ID	Displays the TSO ID of the last user to alter the component.

## History Information Panel

The History Information panel displays ChangeMan ZMF history information about the component that abended, such as version number and size.

To access the History Information panel, place the cursor on the History Information selection line (on the ChangeMan ZMF Data panel), and press Enter to display.

```

Date: 07/01/2004   DA-CICS       - CICS Dump Text Display(60)   Time: 11:33:34
Command:                                               Scroll: PAGE
History Information
PACKAGE ID STA  PROMOTION VV.MM  LAST ACTION      SIZE  PROCNAME  ID
STDA000004 DEV           01.03 2004/06/30 16:25 00418 CMNCOB2  USER18

PF1(HELP) PF2(FMT) PF3(END) PF4(SRC) PF5(RFIND) PF6(FIND) PF7(UP) PF8(DOWN) +
(c) Copyright 1994-2004 by SERENA Software, Inc.
    
```

This table describes the fields on the History Information panel.

Field	Description
Package ID	Displays the package ID for the package that contains the component which abended..
Status	Displays the status of the package.
Promotion	Level that the component resides after this action.
VV.MM	The version and modification number for the component following the IBM standards (mm starts at 01, increments to 99; vv starts at 01, increments to 99, and recycles to 01). The first time the component is processed by ChangeMan ZMF the vv.mm is 01.01. Each successive stage request (in the same change package) increments the mm portion (for example, 01.02, 01.03). The next package using the component causes the vv portion to be incremented (02.01).
Last Action	The date and time of the last change to the component.
Size	The size of the component.
PROCNAME	The procedure that compiled and link-edited the source file.
ID	The TSO ID of the user who performed the last action on the component.

## Extracting ChangeMan Source Listings

StarTool DA lets you access the listings from your ChangeMan ZMF compiled source for your abended program.

**NOTE** For access to certain non-CICS services, StarTool DA CICS relies upon both the StarTool DA subsystem and the DA Workload Server. One of the services provided by the StarTool DA Workload Server is the extraction of ChangeMan compile listings and the importing of them into the StarTool DA Language Data Base. The StarTool DA Workload Server will create a temporary address space for this processing.

```

Date: 07/01/2004    DA-CICS    - Dump Database Contents(40)    Time: 09:56:40
Command: GETSRC                                DumpDB: ESPYDB01
  Code Tran Term   Date    Time  Program  CicsJob  Applid  Type  Dups  Rtpd
_  2112 ESCO CP73 07/01/2004 08:12 ESPUSACO CICSQ203 CICSQ203 TRAN  0   10
_  2112 ESCO CP73 07/01/2004 07:51 CEEPLPKA CICSQ203 CICSQ203 TRAN  0   10
_  ASRA LCRI CP66 06/30/2004 17:18 LCRIDEMO CICSQ203 CICSQ203 TRAN  0   10
_  ASRA LCRI CP90 06/30/2004 16:59 LCRIDEMO CICSQ203 CICSQ203 TRAN  0   10
_  ASRA LCRI CP90 06/30/2004 16:57 LCRIDEMO CICSQ203 CICSQ203 TRAN  0   10
_  ASRA LCRI CP90 06/30/2004 16:53 LCRIDEMO CICSQ203 CICSQ203 TRAN  0   10
_  ASRA LCRI CP90 06/30/2004 16:51 LCRIDEMO CICSQ203 CICSQ203 TRAN  0   10
_  ASRA LCRI CP90 06/30/2004 16:40 LCRIDEMO CICSQ203 CICSQ203 TRAN  0   10
_  ASRA ESDM CP01 06/29/2004 07:11 ESPYDEMO CICSQ203 CICSQ203 TRAN  0   10
_  AD2U ESCO CP06 06/28/2004 11:50 DFHD2EX1 CICSQ203 CICSQ203 TRAN  0   10
_  ASRA ESRA CP03 06/26/2004 11:55 ESXXASRA CICSQ203 CICSQ203 TRAN  0   10
_  ASRA ESDM CP04 06/25/2004 12:57 ESPYDEMO CICSQ203 CICSQ203 TRAN  0   10
-
-
-
PF1(HELP) PF2(GETSRC) PF3(END) PF4(DEL) PF5(KEEP) PF6(PRINT) PF7(UP)      +
4033,Contact SERENA tech support, Invalid ChangeMan program name(RS=01)

```

Requests for this processing are entered from the Dump Database Contents (40) screen. To request that the StarTool DA Workload Server perform this processing:

- 1 Type GETSRC on the command.
- 2 Position the cursor on the dump line containing the desired program.
- 3 Press Enter.

A confirmation message displays, such as "4032,'GetSrc' scheduled."

GETSRC starts the xxxxCMNE PROC, which extracts the source listing and updates the language database. The output from this job contains the source code.



**NOTE** Function key definitions are listed across the bottom of the screen.

- PF2 defaults to the GETSRC command.
- To use a function key command, position the cursor on the requested dump and then press the corresponding function key.

See [Chapter 2, "Using the Debug/Viewing Server" on page 21](#) for information on accessing the Dump Database Contents (40) screen.

## Logic for Retrieving Source Code from ChangeMan

StarTool DA uses the following logic to retrieve source code of abending programs that are controlled by ChangeMan ZMF:

- 1** StarTool DA tries to access the source in the ChangeMan ZMF staging library.
- 2** If staging library doesn't exist, StarTool DA checks if the program's package has been baselined.
- 3** If the package is baselined, StarTool DA retrieves the source code from the baseline library.

located ESxxSPRM member in the customer SHPLIB (with the ESxx value being replaced with their DA configuration identifier). See the StarTool DA Installation Guide for information on changing this parameter.

## Adding DSECTS

To add control block definitions to StarTool DA CICS, you must do the following:

- 1 Build the source to assemble the control block mapping DSECT. Refer to [Building the Source](#).
- 2 Build the control statement describing the CICS, MVS or DFP component and the names of the DSECTS within the control block. Refer to [Building the Control Statement](#).
- 3 Run the job in the ESxxCDBU member of the JCLLIB to add the control block definitions to the StarTool DA DSECT database.

### Building the Source

The source to assemble the mapping DSECT must be a macro. If the source is not a macro, then you must build a macro as input to the assembler. The following examples define the source statements for each situation.

The AFCB control block is defined using the DFHAFCS macro. The required assembler statements to build the StarTool DA CICS DSECT database records follow:

- DFHAFCS
- END

The AID control block is mapped by the DFHAIDDS copy code. The required assembler statements to build the StarTool DA CICS DSECT database records follow:

- MACRO
- AID
- COPY DFHAIDDS
- MEND
- AID
- END

### Building the Control Statement

The control statement must be a record 121 characters long with the following information:

- The first 8 columns must contain the control block system component id.

- For CICS, use the release number. For example, if the control block is for CICS Version 2.2.0, then type "CICS0220" in the first eight columns.
- If the control block is for MVS, enter the FMID.
- If the control block is for DFP, enter the DFP version number (4 characters) in column one through four and leave the other four columns blank.
- The next 16 columns contain the name of the control block and the name of the corresponding DSECT that is to be found in the assembly of the macro. If there is more than one DSECT defined within the macro, you must define their names subsequently for a maximum of seven (7) occurrences.

The control statement used to build CICS CSA follows:

```
1234567812345678123456781234567812345678123456781234567812345678  
CICS0330CSA    DFHCSADSCSAOPPL CSAOPFL CSAMXT CSAMXTDSCSASSA DFHSSADS
```

# Appendix B

## CICS User Exits

User exits record statistics, report progress, intercept messages, call some, but not all, library routines to do various things, such as evaluate the progress of the solution process and alter or stop execution or allow execution to continue without change.

The following table describes CICS user exits used in StarTool DA CICS:

Member	Caller	Associated ATCS Test Name / Description
ESPYCPUA	Multiple ESPYCPxx members	<b>Description:</b> Interface to ULTITSA.
ESPYCPUB	Multiple ESPYCPxx members	<b>Description:</b> Service providing "WORDS" support.
ESPYCP01	ESPYAOPE	<b>ATCS Name:</b> COMPILER_LANGUAGE_TEST
ESPYCP02	ESPYAOAX	<b>ATCS Name:</b> TGT_VALIDATION_TEST
ESPYCP03	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_1 <b>Description:</b> Called when AOAX fails to locate the COBOL TGT.
ESPYCP04	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_2 <b>Description:</b> Called upon entry to VS-COBOL-II RunCom processing.
ESPYCP05	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_3, <b>Description:</b> Called upon entry to LE RunCom processing.
ESPYCP06	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_4 <b>Description:</b> Called upon entry to common RunCom processing.
ESPYCP07	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_5 <b>Description:</b> Called to process the application R14 when in XEIIIN mode.
ESPYCP08	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_6 <b>Description:</b> Called upon completion of LE control block processing by service AAC00.
ESPYCP09	ESPYAOAX	<b>ATCS Name:</b> AOAX_USER_EXIT_7 <b>Description:</b> Called upon completion of processing by the following service routines: <ul style="list-style-type: none"><li>■ AA700 : Processor for TGT test #7—Extraction of the TGT address from the LE RUNCOM structure.</li><li>■ AA800 : Processor for TGT test #7—Extraction of the TGT address from the LE CLLE structure.</li></ul>

Member ESPYCP00 in the StarTool DA maclib contains a directory of all other ESPYCPxx members and common ESPYCPxx service routines. Refer to this member for more information.



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