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# SERENA<sup>®</sup> StarTool<sup>®</sup> DA 5.7

## CICS Training Guide

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## **Contents**

# ***STAR TOOL DA CICS***

## ***TRAINING GUIDE***

This document provides you, as a new user, with an easy approach to learning and using Serena® StarTool® DA CICS. It takes you through a transaction dump, demonstrating the various product features along the way. The dump used for illustration is one of the demo dumps provided with the product.

### **GETTING STARTED**

1. To access the StarTool DA CICS dump viewer, type transaction ESPY on a blank CICS screen and press Enter. This displays the Dump Selection/Display screen. It lists the StarTool DA CICS dump databases and displays the number of dumps in each database.

The Dump List Display Filter at the bottom of the screen is used to filter out all dumps except those matching the criteria specified in any of the fields. If you want to use a prefix in any of the fields, just type the character string in the field.

2. Place the cursor underneath the desired dump database and press Enter. The Dump Database Contents screen displays, listing all dumps in the selected database with the most recent dump appearing at the top.
3. From the Dump Database Contents screen you can print, delete and change the retention period of any dump. To print or delete a specific dump, type PRINT or DEL on the command line, place the cursor on the desired dump and press Enter. To print or delete multiple dumps, type PRINT or DEL on the command line, flag each dump you want to print or delete with an S and press Enter. To change the retention period on a dump, type KEEP +XXX (where XXX = number of days), then place the cursor on the desired dump and press Enter. You can also decrease the retention period by using “-” instead of “+”.

### **ANALYZING A PROGRAM CHECK TRANSACTION ABEND (ASRA)**

1. Cursor-select the ASRA abend that was generated by the ESRA transaction; the Master Menu displays for that dump.
2. To find the abending statement for program check abends, choose Option 2 (Dump Diagnostic Data) from the Master Menu.

The first part of the Problem Summary Section provides a summary of the abend along with a description of the interrupt code. Following the description is the Failing Program Statement, which provides

- the Source Line # of the failing statement in the pre-compiled/translated source listing,
  - the Compile Line # of the statement in the compile listing, and
  - the COBOL statement that failed.
3. Make sure that the scrolling value in the Scroll field in the upper right corner of the screen is set to CSR. Place the cursor on the line that contains Operand 1 Summary and press PF8 (DOWN) to position this line at the top of the screen.

The Operand Summaries display the NAME of the operand, the CONTENTS of the operand in hex/character format, the ADDRESS and LENGTH of the operand, and the field definition as it appears in the working storage section of the program source. Next to the Operand 2 Summary is a flag (=====>) indicating that StarTool DA CICS detected this field to be invalid. StarTool DA CICS tells you exactly what is wrong with the field. In this case, the data in the field contains invalid sign bits.

4. The StarTool DA CICS point-and-shoot feature allows you to go directly to the data for any address on any screen. Position the cursor on an address, press Enter, and StarTool DA CICS positions you on the data at that address. When the cursor is positioned on the 1st byte, you are positioned at the 31-bit address; when the cursor is positioned on the second byte, you are positioned at the 24-bit address.

To illustrate the point-and-shoot feature, place the cursor on the first byte of the 4-byte address field of operand 2 and press Enter. This takes you directly to where the data for operand 2 is located in the Working Storage section of the dump. This enables you to examine the data surrounding the invalid data element.

5. Press PF3 to return to the Diagnostic screen. Then press the home key to position the cursor on the command line.
6. Press PF8 to scroll down to the COBOL Internal Data Section. This section of the Dump Diagnostic Data screen displays the TGT, BLW cells and BLL cells. Place the cursor on the first byte of the address of BLL cell 01, which points to the EIB, and press Enter. This takes you directly to the Exec Interface Block, which displays in hexadecimal dump format.
7. Press PF2 (FMT) to display the formatted DSECT with character and decimal conversions of the hexadecimal fields. Once the DSECT displays, you can press PF11 (RIGHT) to scroll to the right without losing the contents on the left side of the screen.



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You can also use the FMT command to format other control blocks. Select Option 5 (Control Blocks) on the Master Menu. Cursor-select the desired control block, then enter the FMT command by pressing PF2. Once you are in a formatted control block, you can use the PF9 (SWAP) key to swap between an expanded version of the DSECT containing comments and equates, and a compact version of the DSECT containing just the field names and their descriptions.

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8. Press the PF3 key twice to return to the Dump Diagnostic Data screen.

Directly below the COBOL Internal Data Section is the Assembler Data Section. The Assembler Data Section shows the location of the abending instruction, a disassembly of the abending instruction, and the locations and values of the instruction's operands. To locate the abending instruction in the program storage section of the dump, place the cursor underneath the first byte in the LOC: field and press Enter. This positions the cursor directly on the op-code (hex 'FA') of the abending instruction in program storage. Once the cursor is on the FA op-code, press PF12 (DAS) to disassemble the code.



*Tip*

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When the disassembled code displays, you can force the disassembler to realign the code one half word to the left by pressing PF10 (LEFT) or one half word to the right by pressing PF11 (RIGHT). You can also toggle the values of the lengths and displacements of the operands that are displayed on the right side of the screen. Press PF9 (SWAP) to change hex values to decimal or decimal values to hex.

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9. Press PF3 to return to the Program Storage screen. Then place the cursor underneath the FA op-code.
10. Press PF4 (SRC) to get to the COBOL listing of the abending program. After executing the SRC command, the abending COBOL instruction appears at the top of the screen highlighted in red.



*Note*

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You can also execute the SRC command (PF4) directly from the Dump Diagnostic Data Screen to view the entire source listing.

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11. Place the cursor under BADFIELD and press Enter. The BADFIELD data item defined in the Working Storage section of the dump displays. The contents of the Working Storage fields display to the left of their definitions. The contents display in either hex X:, character C: or formatted decimal F:.
12. Press the tab key until the cursor is positioned on the statement number of BADFIELD and press Enter. StarTool DA CICS displays the Working Storage section in hex format with the field characteristics displayed at the top of the screen and the actual COBOL source statement at the bottom.



*Note*

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The COBOL program must be compiled using the StarTool DA CICS language processor PROC. Only COBOL II and COBOL for OS/390/LE 390 are supported. The COBOL program can be compiled either before or after the abend occurs. If the program is not compiled under StarTool DA CICS, note the OFFSET that displays in the Dump Diagnostic screen. Use this offset and the compile listing to determine the abending source statement.

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13. Press CLEAR to return to the Dump Database Contents screen.

## GENERAL INFORMATION

1. To keep the overhead of dump processing low in the CICS regions, StarTool DA CICS was designed to do much of its processing as started tasks running under z/OS (or OS/390). Because of this design, there is a slight delay after requesting some of the functions. When a transaction abend occurs, StarTool DA CICS starts a task under z/OS (or OS/390) to analyze the dump and write it to the StarTool DA CICS dump database. The dump is not available for viewing until this process is complete, which takes a few minutes. The DEL and PRINT processes work much the same way. If you delete a dump, it does not disappear from the list immediately, but is deleted shortly. When printing a dump, the output is available in the JES queue in a few minutes. If these processes are taking too long, there are simple StarTool DA CICS parameters that can be changed to speed up the process.
2. Many fields are cursor selectable. Simply place the cursor on the desired field and the StarTool DA CICS point-and-shoot feature takes you directly to the address of the field in the dump.
3. Users are able to define the PF keys to meet their needs. The PF key definitions are saved by user ID (from the CESN signon). To access the PF key definitions, place the cursor on the Function Key Line (at the bottom of most screens) and press Enter. The Function Key Definitions screen displays and you can view, add, change or delete any of the currently defined PF keys. This screen also lists all the available commands.

Type the commands on the command line at the top of the screen, or, for easier use, assign commands to a PF key and execute them with a single keystroke. See [“Commands”](#) for details.

4. On some screens, there is a field called SCROLL. This field allows you to set a default scroll value when you use any of the scroll commands (UP, DOWN, RIGHT, LEFT). Specify one of 5 subparameters (which can be abbreviated with the first letter if underlined), in the SCROLL field:

Page    Scrolls by one full screen.

Half    Scrolls by one half page.

Max    Scrolls to the maximum point of that scroll command.

Csr    Scrolls based on the cursor placement.

nnnn    Scrolls the number of lines or columns specified (1 - 9999).

You can also append the number of lines/columns to be scrolled or type the letter M for max to any of the scroll commands. For example: UP 9999, DOWN M.

5. For all dump viewing screens, use the CLEAR key for an express exit.

## COMMANDS

The StarTool DA CICS system includes a series of commands to assist you in each of the StarTool DA CICS screens. It is not necessary to use any 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 will that command be 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. StarTool DA CICS commands are listed below.

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 <i>LA</i> 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 <i>LO</i> 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 <i>LR</i> 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 has been 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).
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 have displayed all lower-level options.</li><li>• Type 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 are displayed.</li><li>• To compress the lower level options, type the command ECB on 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. You can assign END to a PF key.

<b>COMMAND</b>	<b>DESCRIPTION</b>
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 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>• After the FIND command executes, the character or numeric text is erased from the command line but saved by StarTool DA CICS.</li> </ul>
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 ZMF Source Listing and use it to update the Language Database.</p>

COMMAND	DESCRIPTION
HELP	<p>Provides 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 then 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 on the command line followed by a space and the offset, and then 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 on 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>

<b>COMMAND</b>	<b>DESCRIPTION</b>																																																								
LCB	Locates any of the following control blocks using the standard control block name, as listed. Type LCB on the command line followed by a space and the control block name. 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.																																																								
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COMMAND	DESCRIPTION
LEFT	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.
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 to select it. Type PRINT on the command line and press Enter (or press the appropriate PF key).</li><li>• To print sections of a dump, you must be in Screens 50 or 51. Type an S in front of each section name to select it. After typing S on all rows you want to print, press Enter and type the print command on the command line.</li><li>• Printing normally occurs as a started task. To print as a job, use the parameter M=<i>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 <code>//xxxx DD SYSOUT=&amp;OUT</code>.</li></ul>
RFIND	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.
RIGHT	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.
SRC	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.

<b>COMMAND</b>	<b>DESCRIPTION</b>
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 will search. If blanks are included in the search text, enclose 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), then press that PF key.</p>

