



serena.com

SERENA[®] StarTool[®] DA 5.7

Batch Training Guide

Serena Proprietary and Confidential Information



Copyright

Copyright © 2001-2007 Serena Software, Inc. All rights reserved.

This document, as well as the software described in it, is furnished under license and may be used or copied only in accordance with the terms of such license. Except as permitted by such license, no part of this publication may be reproduced, photocopied, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, without the prior written permission of Serena Software. Any reproduction of such software product user documentation, regardless of whether the documentation is reproduced in whole or in part, must be accompanied by this copyright statement in its entirety, without modification.

This document contains proprietary and confidential information, and no reproduction or dissemination of any information contained herein is allowed without the express permission of Serena Software.

The content of this document is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Serena Software. Serena assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

Trademarks

Serena, TeamTrack, StarTool, PVCS, Collage, Comparex, and ChangeMan are registered trademarks of Serena Software, Inc. The Serena logo, Dimensions, Professional, Version Manager, Builder, Meritage, RTM, Change Governance, Profit From Change, Command Center, Composer, Reviewer, and Mover are trademarks of Serena Software, Inc.

IBM, CICS, DB2, IMS, MVS, OS/390, and z/OS are trademarks or registered trademarks of IBM Corporation.

All other products or company names are used for identification purposes only, and may be trademarks of their respective owners.

U.S. Government Rights

Any Software product acquired by Licensee under this Agreement for or on behalf of the U.S. Government, its agencies and instrumentalities is "commercial software" as defined by the FAR. Use, duplication, and disclosure by the U.S. Government is subject to the restrictions set forth in the license under which the Software was acquired. The manufacturer is Serena Software, Inc., 2755 Campus Drive, San Mateo, CA 94403.

Part number: MA-DABTRN-002

Publication date: 5 October 2007

CONTENTS

<i>Identifying and Using Dumps</i>	5
Viewing a Batch Mini Dump	6
Using the Batch/DVS ISPF Dump Viewer	7
<i>DVS Selection Menu</i>	9
Option 1 – System and Job Information	9
Option 2 – Diagnostic Section	9
Option 3 – Failing Instruction Section	9
Option 4 – Reg Contents and PSW Info	10
Option 5 – Program Call Trace Summary	11
Option 6 – Program Storage	11
Option 7 – Program Listing (COBOL Only)	11
Option 8 – Data Management Control Blocks	11
Option C – ChangeMan ZMF Information	12
<i>Overriding Default Dump Processing</i>	12
<i>Processing Modes</i>	13
Development Mode	13
Production Mode	13

Contents

STAR TOOL DA BATCH TRAINING GUIDE

This document provides you, as a new user, with an easy approach to learning and using Serena® StarTool® DA Batch. It takes you through a COBOL for MVS batchabend to demonstrate the various product features along the way. The dump used for illustration is a demo dump provided with the product.

There are two ways in which to look at the abend information:

1. Through the StarTool DA Batch Mini Dump that appears in the output of the job.
2. Through the StarTool DA Batch/DVS ISPF dump viewer.



Note

Most of the information available through the DVS ISPF viewer is also in the Mini Dump.

Before performing the following tutorials, submit demo job ES019DM2. This demo job abends to create a dump to view. See its source for setting parameters on the type of abend that you want to occur.

If you cannot find the jobname, contact the system programmer who installed StarTool DA Batch.

IDENTIFYING AND USING DUMPS

There are three types of dumps with StarTool DA Batch dump processing. StarTool DA Batch produces any one or a combination of the following dumps through the StarTool DA Batch Control Table (EMCT) or through pre-defined DDnames described in *“Overriding Default Dump Processing”*. The three dumps are:

- StarTool DA Batch Mini Dump – A dump diagnostic report that appears in the output of the job and viewed through SDSF or any other SYSOUT viewing product.
- IBM Formatted Dump – The traditional IBM SYSUDUMP, SYSABEND or SYSMDUMP. These dumps are produced only when their DDnames are detected in the abending step. Many vendors require one of these dumps before attempting any error analysis.



Note

StarTool DA Batch does not process diagnostic information unless it detects the presence of one of these DDnames.

- StarTool DA Batch/DVS Dump – Consists of two parts:
 - All of the diagnostic information in the StarTool DA Batch Mini Dump to the user through the StarTool DA Batch/DVS ISPF menu system.
 - An IBM system dump that is generated dynamically when the abend occurs. Access this dump only when the user needs to look at actual system dump storage. StarTool DA Batch/DVS provides the user with formatted access to this system dump without requiring the user to have knowledge of the IBM IPCS product (system dump viewing tool).



Note

Because this dump is in IBM system dump format, it can be sent to any vendor for additional abend diagnostics.

Viewing a Batch Mini Dump

To access the StarTool DA Batch Mini Dump:

1. Go into SDSF (or your SYSOUT viewing product).
2. Select the ESPYDUMP DD from jobname ES019DM2. This is the StarTool DA Batch demo COBOL abend. If you cannot find the jobname, contact the system programmer who installed StarTool DA Batch.

The Mini Dump contains the following sections:



Note

You may not see all of this information; it varies depending on your system setup options and the type of program/abend.

- Job Information – Displays the Completion Code, Jobname, Stepname, Job Owner ID, and Time of the abend.
- System Information – Displays the CPU Model, Operating System level, Control Program FMID, and the levels of DFSMS and JES2.
- Diagnostic Section – Provides an explanation of the abend along with possible causes and corrective actions.
- Failing Instruction Section – Provides the program, offset, and failing assembler instruction. This is followed immediately by the Failing Instruction Analysis section that displays the operands from the failing instruction, instruction type, number of operands, operand type, operand address, data at the operand address, and an indicator on the left side of the screen that points to the operand with invalid data. In the demo job, ES019DM2, operand 2 has a bad sign-digit.
- Failing COBOL Statement Section – Contains the failing COBOL statement from the COBOL compile listing, data definitions from the Working Storage section of the program, and the operand values at the time of abend. There are two ways in which StarTool DA

Batch produces the failing COBOL statement in the Mini Dump; these are described in *“Processing Modes”*.

The “Instruction Sequence Prior to and Including the Abending Instruction” area shows the failing assembler instruction preceded by the assembler instructions leading up to it. This section displays the address, offset, machine code, operation code, and operands for each instruction.

The compile date, the module containing the CSECT, the library from which the module was loaded, and the link-edit date display.

- PSW and Register Section – Displays the Program Status Word (PSW) at the time of abend and the general purpose registers. The registers display with their hex value, decimal value, and where they point to in the address space.
- Call Trace Section – Displays the flow of program calls leading up to the abend.
- Working Storage Section – Formats the virtual storage of the program and displays the BLW and BLL cells.
- Data Management Control Blocks – Formats the DCB information from the non-VSAM files accessed by the program, and ACB and RPL information from the VSAM files accessed by the program. Also displays the current and previous record information when available.
- ChangeMan® ZMF Information – Provides package and component information for programs under ChangeMan ZMF control.

Using the Batch/DVS ISPF Dump Viewer

To access the StarTool DA Batch/DVS viewer:

1. Go to ISPF Option 6.
2. Type %ES01DVS, where ES01 is the configuration ID used for the installation process. If this does not work, contact the programmer who installed StarTool DA Batch to get the correct CLIST name. This displays the StarTool DA Primary Option Panel.

```
ESPYAP01 V550 ----- StarTool DA Primary Option Panel -----  
Command/Option ==>                                     Use PF3/END  
  
Select a StarTool DA application  
  
Your selection ==> 2   1 = StarTool DA CICS  
                   2 = StarTool DA Batch
```

Batch Training Guide

Choose Option 2 (StarTool DA Batch) to display the StarTool DA : DBI Selection Panel.

```
----- StarTool DA : DBI Selection Panel -----
COMMAND ==>

                Select local or remote DBI
Local DBI:  _ WST001.DA.ES01.E390.DBKF

Remote DBI:ID      Dataset Name
      _ Q002      WST001.DA2.ES01.E390.DBKF
```

3. Select the dumps to view (Local DBI or Remote) by placing the cursor on the dump, type S (for select) and press Enter.

The DSN Selection Prefix refers to the data set name that was used for the DVS system dump (see *“Identifying and Using Dumps”* for more details). The default high-level qualifier for the DVS data set is the job owner ID. The StarTool DA Batch administrator can change this high-level qualifier by modifying the EMCT table.

The bottom of the screen displays the current source listing directory. You can change this if you are using a different source listing directory.

Fill in the selection criteria, or use the defaults, and press Enter to display the Dump Data Set Display Selection panel.

```
----- StarTool DA : Dump Data Set Selection -----
COMMAND ==>                                SCROLL ==> PAGE

-- Enter 'V' in Selection Field to enter 'Dump View Server' Main Menu.
-- Enter 'I' in Selection Field to Process DVS Data Set with IPCS.
-- Enter 'D' in Selection Field to delete the DUMP data set.
-- Press PF10 or PF11 to display additional selection data.

S Jobname      Program      Abend      Date          Time
_ T1409DM2     ES019DM2    SOC7 -     DECEMBER 17, 2003  13:29:29
_ T1407401     PAYROLL7    SOC7 -     DECEMBER 17, 2003  13:35:00
_ T1712360     PAYROLL7    SOC7 -     DECEMBER 17, 2003  13:12:36
_ T171236M     PAYROLL7    SOC7 -     DECEMBER 17, 2003  13:07:33
***** Bottom of data *****
```

4. From this screen type V to view a dump, I to invoke IPCS for the system dump (system programmers only), or D to delete a dump on the Command line.

The dumps display by Jobname, Program name, Abend Code, Date, and Time. Press PF11 to see the Offset and Failing Instruction for each dump. Press PF11 again and StarTool DA Batch adds the PSW and DVS system dump data set name to the display. Press PF11 for the third time to go back to the original display.

5. Find the demo dump for the job that you submitted, place a V next to it, and press Enter to display the DVS Selection Menu.

DVS SELECTION MENU

There are nine options on the Debug/Viewer Server Selection Menu.

```

----- StarTool DA : DVS Selection Menu -----COMMAND ==>
Title: ABEND SOC7  IN JOB DA54B9DM AT 11:11:02 ON WEDNESDAY, FEBRUARY 19, 2004

          1 System and Job Information
          2 Diagnostic Section
          3 Failing Instruction Section
          4 Reg Contents and PSW Info
          5 Pgm Call Trace Summary
          6 Program Storage
          7 Pgm Listing (COBOL Only)
          8 Data Mgmt Control Blocks
          C ChangeMan ZMF Information

Enter number of selected Option or END(PF3) To EXIT.

```



Tip

To go directly from one DVS option to another, use the = sign followed by the panel number. For example, if you are in Option 3 and want to go directly to Option 7, type =7 and press Enter.

Option 1 – System and Job Information

1. Choose Option 1 to display the System and Job Information screen. This screen displays the same information that is at the beginning of the StarTool DA Batch Mini Dump.
2. Press PF3 to return to the DVS Selection Menu.

Option 2 – Diagnostic Section

1. Choose Option 2 to display the Diagnostic Section. This screen displays a description of the abend, possible causes for the abend, and user action to take to correct the error.
2. Press PF3 to return to the DVS Selection Menu.

Option 3 – Failing Instruction Section

1. Choose Option 3 to display the Failing Instruction Section. The top of this screen displays the failing program name and offset, followed by the failing COBOL statement. It includes data definitions from the Working Storage section of the program and their values at the time of the abend. StarTool DA Batch identifies the invalid statement by placing an indicator to the right of the statement. In this case, the second operand has a bad sign-digit indicator, which is highlighted in red.

Batch Training Guide

2. Press the tab key once to position the cursor on the line number of the failing program statement; then press the Enter key. This takes you directly to the failing statement within the COBOL compile listing.
3. Position the cursor under the first line displayed on the screen under COBOL STATEMENTS (the line should show ER STMT> at the beginning). Press Enter to display the Procedure Division Variables screen. This shows the COBOL statement variables and their contents.
4. Press PF3 to return to the DVS Selection Menu.

Option 4 – Reg Contents and PSW Info

1. Option 4 displays the Reg Contents and PSW Info screen with Jobname, Stepname, Program Name, Abend Code, Offset, Instruction Length, Interrupt Code, PSW, Failing Assembler Instruction, Failing COBOL Statement, and the Registers at the time of abend.



Note

Use this screen for advanced diagnostics; you may want to skip it at this time and continue with Options 5, 7, and 8.

Up to this point, most of this information is available in the StarTool DA Batch Mini Dump. Now you will see the DVS features that pertain to the StarTool DA Batch generated system dump, which was not needed until this point. DVS does not access the system dump until you request information that requires it.

2. Press the tab key until the cursor is positioned under register 8; and press Enter. StarTool DA Batch loads the system dump into a data space and provides you with formatted access to the data. The StarTool DA Batch Storage Display screen displays the Selected Job, Starting Address, Storage Area, and Program Name; and formats the dump storage by address, offset, data, and translated data.
3. From the StarTool DA Batch Storage Display screen you can go forward or backward in the dump by using the + and - commands. For example, to position the dump X'500' bytes further from your current location, type +500 on the command line and press Enter. To go backward in the dump, use a minus sign instead of a plus sign.
4. Press PF3 to return to the previous screen.
5. The first operand in the failing assembler statement (AP X'138'(3,R8),X'13B'(3,R8)) points to X'138' bytes off of register 8 for a length of 3. DVS takes you directly to this storage area when you type L R8+138 on the command line and then press Enter. This brings you back to the StarTool DA Batch Storage Display screen.
6. Press PF3 to return to the DVS Selection Menu.

Option 5 – Program Call Trace Summary

1. Option 5 displays the Program Call /Trace Summary screen. This screen shows you the flow of the program calls and the offset from within the program where the call was made. The Application Program Attributes display in the next section of the screen. This shows you the Load Module Name, Program Name, Compile Date, Length, and Language.
2. Press PF3 to return to the DVS Selection Menu.

Option 6 – Program Storage

1. Choose Option 6 to display the Storage Display Selection Panel. This panel provides direct access to specific areas in the system dump that include the Area of Abending Instruction, Storage of Entire Abending Program, Lowest Address in the Address Space, CVT, ASCB, TCB, and the COBOL Working Storage section.
2. Place an S next to the Abending Instruction section and press Enter. The screen is positioned to the abending instruction (in the object code).
3. On the command line, type DISASM to invoke the StarTool DA Batch disassembler. This displays the assembler source.
4. Press PF3 to return to the previous screen.
5. If you have a COBOL source loaded program, you can display COBOL source related to the abending instruction by typing SHOWCOBL on the command line.
6. Press PF3 to return to the DVS Selection Menu.

Option 7 – Program Listing (COBOL Only)

1. Choose Option 7 to display the COBOL Listing screen.
2. Type F WORKING on the command line and press Enter. This takes you to the Working Storage section of the COBOL listing. To the left of each data definition, StarTool DA Batch displays the contents of each field at the time of abend. These fields display in character C:, binary B:, or packed decimal P: format. Use PF7 (UP) and PF8 (DOWN) to scroll through the listing.
3. Press PF3 to return to the DVS Selection Menu.

Option 8 – Data Management Control Blocks

1. Option 8 displays the Data Management Control Blocks screen that shows data sets that were active for the current job, including the DDNAME, DEVICE type, UNIT name, VOLSER, Disposition, Access Method, EXCP count, and Control Block Information.

Batch Training Guide

2. Place an S next to DDNAME VSAM0001 and press Enter to display formatted information for the processed VSAM file. At the top of the screen is the File Summary section, which displays the Access Type, Data Set Type, and Processing Type. Below this is the last request that was made to this file. In this part of the screen you will see the request ID, request ECB, request mode, access type, request Options 1 and 2, current RBA, and file errors.
3. To display the current and previous records, type RECS on the command line and press Enter. This displays the VSAM Records screen. The current and previous records display along with their addresses, offsets, data, and translated data.
4. Press PF3 to return to the DVS Selection Menu.

Option C – ChangeMan ZMF Information

Option C is valid only if you have Serena ChangeMan ZMF installed and your abending program resides in a ChangeMan ZMF package.

1. Choose Option C to display the ChangeMan ZMF Information screen for programs under ChangeMan ZMF control.

This screen provides the following selections for additional ChangeMan ZMF information about the component:

- **General Package Information**—Displays information about the package that contains the component that abended.
- **Load Component Information**—Displays information pertaining to component that abended.
- **History Information**—Displays ChangeMan ZMF history information for the component such the last action and version of component.
- **Display Source Code**—Displays ChangeMan ZMF source listing for the abended program.

2. Press PF3 to return to the DVS Selection Menu.

OVERRIDING DEFAULT DUMP PROCESSING

The Master Control Table (EMCT) contains default options that determine which dumps are produced. You can override these defaults with DD statements. The following table lists the dumps produced when the corresponding DD statement is present in the JCL of the abending step.

DD Statement	IBM Dump	StarTool DA Batch Mini Dump	StarTool DA Batch Viewer Dump
//ESPYALL DD DUMMY	X	X	X
//ESPYBOTH DD DUMMY	X	X	

DD Statement	IBM Dump	StarTool DA Batch Mini Dump	StarTool DA Batch Viewer Dump
//ESPYE390 DD DUMMY		X	X
//ESPYIBM DD DUMMY	X		
//ESPYMINI DD DUMMY		X	
//ESPYDVS DD DUMMY			X

PROCESSING MODES

StarTool DA Batch operates in two modes: Development Mode and Production Mode. Use them interchangeably in the development and production environments. For both modes, the program must be compiled with the SOURCE, LIST, MAP, XREF, and NOOFFSET options.

Development Mode

Development mode is a mode in which StarTool DA Batch considers the abend as having come from a program that is still in development. This is defined by the following DD statement in the execution JCL:

```
//ESPYCOBL DD DSN=xxxxxxxx
```

where xxxxxxxx is the name of the PDS (without the member name) or sequential data set that contains the compile listing to be used by StarTool DA Batch. The compile listing is the SYSPRINT output from the compile step.

Production Mode

Production mode is a mode in which StarTool DA Batch considers the abend as having come from a program that is in production. This is defined as all jobs that do not have an ESPYCOBL DD statement and those that pass the RAChecks within the StarTool DA Batch product. Your StarTool DA Batch system administrator must add two StarTool DA Batch language processor steps to your compile JCL. After-the-abend program compiles are supported in Production Mode.

