



STROBE[®] from Compuware

STROBE MVS Application Performance Measurement System

STROBE is a software product that reports on how your application programs use resources in IBM MVS/ESA, IBM OS/390, and IBM z/OS environments. It determines where and how an online or batch application spends time. Incorporating STROBE measurement into each phase of the application life cycle—design and development; build, test and quality assurance; production; and maintenance—ensures that your applications are designed to run efficiently and responsively and that no performance problems are unintentionally introduced.

What's New in STROBE MVS for Sysplex Release 3.0

STROBE MVS for Sysplex Release 3.0 adds support to help you improve the performance of applications using the latest technologies, like Java JVM and includes more automation to save you time and get more value from the product. For example, the new Memory Objects Report details the usage of 64-bit storage now available in z/OS. Creating profiles with source code indexing is now much easier for clients that save listings in Compuware's DDIO.

The AutoSTROBE function of the Advanced Session Management Feature has been enhanced to provide candidate loading capability. STROBE builds a list of batch programs that meet or exceed certain performance criteria and allows you to select job steps that should be monitored by AutoSTROBE.

The Java Feature now supports measurement of applications written using Java Virtual Machine (JVM) in addition to High Performance Java (HPI). A set of new reports showing method-level CPU and Wait Time data can be generated when STROBE measures JVM code. You can also target individual packages, classes, and methods for measurement through new ISPF targeting panels. iSTROBE Release 1.1 introduces a number of enhancements too. For more information on iSTROBE, see the *iSTROBE Release 1.1 Announcement*.

AutoSTROBE Candidate Processing

The AutoSTROBE function of the Advanced Session Management Feature released in STROBE 2.5 has received high praise from customers. AutoSTROBE allows users to designate application steps to be monitored for abnormal performance. When a significant deviation is detected, a STROBE measurement is initiated so the cause can be determined. Users suggested that this function could be even easier to use if STROBE could help determine which steps to monitor for abnormal behavior.

Users can simply select steps from a list and AutoSTROBE will monitor them. Figure 1 shows an example of the STROBE - AUTOSTROBE PROCESS CANDIDATES panel which displays the candidate list that can be built.

- **AutoSTROBE SMF Candidate Utility** - This tool examines SMF data and allows you to set thresholds such as CPU time, elapsed time and the number of EXCPS as pre-requisites to be an AutoSTROBE candidate. Then by executing utility-provided JCL, you build an AutoSTROBE candidate list. Once it is built, you can manage the list and set different thresholds or even suppress thresholds to control what jobs AutoSTROBE monitors or measures.
- **AutoLoader** - Each time a batch application ends, AutoSTROBE notes its resource consumption. If the AutoSTROBE-calculated thresholds are exceeded, then the application is placed on the candidate list by the AutoLoader.

To limit candidate selection to an easy-to-manage number, several user controls are included:

- Performance Threshold Control - For candidate processing, several parameters can be set in the STROBE parameter library:
 - EXCPS
 - TCB time
 - Elapsed Time
 - Frequency of Run (Only for use with the AutoSTROBE SMF Candidate Utility)
- **Candidate Exclusion List** - The exclusion list allows you to winnow out all applications that should never be a candidate for AutoSTROBE screening. System tasks such as IEBGENER and other types of applications that aren't appropriate can be placed on this list and they will not be monitored.

AutoSTROBE Monitoring Enhancements

The AutoSTROBE monitoring function has several enhancements:

- You can adjust or suppress the elapsed time, TCB time and I/O activity (suppress only) threshold parameters AutoSTROBE uses to determine whether it should initiate measurement of a job step.
- AutoSTROBE initiates measurements of job steps when it detects an abnormal I/O to CPU usage ratio. You can now modify the ratio AutoSTROBE uses, and in addition define another four I/O to CPU usage ratios that should initiate job step measurement when AutoSTROBE determines the ratios have been reached.
- AutoSTROBE monitoring parameters can be changed after the request has been made.
- If AutoSTROBE determines a job step measurement is required, you can specify the measurement type (warning, active, queued or both) for each AutoSTROBE request.
- Performance Profiles can be generated directly from the AutoSTROBE status panel.

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----- STROBE - AUTOSTROBE PROCESS CANDIDATES -----
COMMAND ==>                                SCROLL PAGE

Jobname ==>*          Stepname ==>*          Program ==>*
System ==> BB03
Modify Exclusion List==> N View Frequency List ==>N Change Sort ==>N
Line Options: A -AutoStrobe Q -Add Queued E -Add to Exclude List D -Delete

C JOBNAME  STEPNAME  PROGRAM  SYSTEM DATE/TIME  EXCEEDED  ELAPSED  TCB
----- MM/DD/YYYY ----- (MINUTES)-
_ FTPGET0  FTP        FTP      BB03  12/27/2002  14:01:01  13      0
a ASMFMS9  STEP1     COB310  BB03  12/24/2002  06:25:33  17      7
_ ASMFMS9  STEP4     COB2PAY  BB03  12/23/2002  00:47:24  5809    7
_ AA94VBCT GONEW.PLI COB2PAY  BB03  12/20/2002  00:56:11  5788   10
q AA945611 COB.RUNT  STROBEDT BB03  12/18/2002  13:23:55  20     10
  
```

Figure 1 STROBE - AUTOSTROBE PROCESS CANDIDATES Panel

STROBE Java Feature Enhancements

For Java applications running under Java 1.3.1, STROBE provides you with the ability to target code that you want to measure and new reports that contain deep levels of performance detail.

Java Reports

Java users will see several new reports that show performance data about Java applications running under JVM. Two of the reports also will identify machine code converted using the Just-In-Time (JIT) compiler. The following lists the new reports.

- Java CPU Usage and Wait Time by Called Method Summary reports present execution information at the method level. Processing and wait are related back to the user targeted method or the initial method run.
- Java CPU Usage and Wait Time by Called Method reports show the package, class and methods invoked by the user targeted or initial method. Additionally, invoked DB2 statements are shown. Figure 2 shows an example of the Java CPU Usage by Called Method Report.
- Java CPU Usage and Wait Time by Executing Method reports show the method or service routine actually processing at the time STROBE samples. (These reports also identify "JIT" compiled code.)
- Java Targeting - This report shows the names of the search arguments used by the Java targeting function.
- Java Environment - This report shows CLASSPATH information for each JVM profile.
- CICS API and Non-API transaction profile reports show Java methods invoked under CICS.

The Program Section Usage Summary and Program Usage by Procedure and CPU and Wait Time Attribution reports will also reflect JVM Java activity if it is detected.

Java JVM Targeting

STROBE provides new capabilities to allow you specify exactly what portion of the Java program structure should be measured. New ISPF panels permit you to target by name the particular package(s) class(es) and/or method(s) that are of interest to you. Based upon the location of the entities you decide to target, STROBE will display a list of packages and classes.

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** JAVA CPU USAGE BY CALLED METHOD **

PACKAGE - DB2TST
CLASS   - sqlj2
method  - main(java/lang/String)

PACKAGE/CLASS          % CPU TIME CPU TIME HISTOGRAM MARGIN OF ERROR: 3.58%
METHOD                SOLO   TOTAL  .00   8.00   16.00   24.00   32.00
  INVOKED SQL
  getConnection(java/lang/String,
    java/lang/String)          .01   .01   .
-----
CLASS DriverManager          TOTAL  .01   .01
java/text//DateFormat
  format(java/util/Date)      .01   .01   .
-----
CLASS DataFormat            TOTAL  .01   .01
  SQL_Divide(Ctx)             .00   .00   .
  SQL OPEN SQLJ22            00-10 .26   .26   .**
  SQL_FullInline(Ctx)        .00   .00   .
  SQL OPEN SQLJ22            00-09 .39   .39   .***
  SQL_FullOuter(Ctx)         .28   .28   .**
  SQL OPEN SQLJ22            00-05 .28   .28   .**
  SQL_Having(Ctx)            .00   .00   .
  SQL OPEN SQLJ22            00-08 .34   .34   .***
  SQL_InnerJoin(Ctx)         2.62  2.62  .*****
  SQL FETCH SQLJ22           00-01 .01   .01   .
  SQL_InnerSelf(Ctx)         .00   .00   .
  SQL OPEN SQLJ22            00-04 .01   .01   .
  SQL_ISRT_ByHostVariable(Ctx) .00   .00   .
  SQL OPEN SQLJ22            00-14 .10   .10   .*
  SQL SELEC SQLJ22           00-14 .01   .01   .
  SQL_ISRT_byValue(Ctx)      .00   .00   .
  SQL SELEC SQLJ22           00-04 .19   .19   .*
  SQL_Left(Ctx)              .34   .34   .***
  SQL_MaxList(Ctx)           1.23  1.23  .*****
  SQL_MinList(Ctx)           .03   .03   .
  SQL_Order(Ctx)             .14   .14   .*
  SQL OPEN SQLJ22            00-02 .32   .32   .***
-----
CLASS SQLJ2                  TOTAL  6.68  6.68

```

Figure 2 JAVA CPU USAGE BY CALLED METHOD Report

More STROBE Enhancements

There are a number of other enhancements that are available with STROBE MVS for Sysplex Version 3.0.

DDIO Indexing

Compuware DDIO files can be used to create profiles that display source code without creating and specifying SYSPRINT compiler data sets. This allows users to keep a central repository of listings that can be used by STROBE and other products. See Chapter 3 of the *STROBE User's Guide*.

STROBE ADABAS/NATURAL Feature

If STROBE detects DL/I activity within a Natural program that is directed at an IMS database, the Performance Profile will show this activity in the CPU Usage by Natural Statement report. It provides a reference number for the database that you can use to identify where the Natural call was directed in the IMS environment. You can then cross-reference the IMS Performance Profile reports to further analyze opportunities to improve the program.

Unix System Services

Reporting of the zFS file system is supported for this release. Also, processes created with a Fork can now be measured with an ADD QUEUED request.

CICS Feature

The CICS API and non-API transaction profiling reports will contain Java data if the STROBE Java feature is installed.

z/OS Memory Objects Report

If you have applications running in 64-bit architecture z/OS systems, STROBE will produce a report outlining memory usage during a measurement. For each memory object it encounters, characteristics such as storage protection key, start and end addresses, and usable megabyte listings are contained in the report. An example is provided in *STROBE Concepts and Facilities*.

New Release Support

Support for the Latest z/OS Releases

STROBE MVS for Sysplex Version 3.0 supports

- z/OS V1R3, V1R4

Support for the Latest Subsystem Releases

- IMS 8.1
- CICS Transaction Server Version 2.2
- ADABAS through and including V7.3
- Natural through and including Version 3.1.5
- MQSeries Release 5.3
- IBM C/C++ Releases for OS/390 V2R9, V2R10 and IBM C/C++ for z/OS V1.1 through V1.4

Enhancements to STROBE Documentation

To support this release the following manuals are revised.

- *STROBE MVS System Programmer's Guide*
- *STROBE MVS User's Guide with Advanced Session Management*
- *STROBE MVS User's Guide*
- *STROBE MVS Messages*
- *STROBE MVS Concepts and Facilities*
- *STROBE ADABAS/NATURAL Feature*
- *STROBE CICS Feature*
- *STROBE IMS Feature*
- *STROBE Java Feature*
- *STROBE Unix System Services Feature*

Softcopy Documentation

STROBE MVS for Sysplex Release 3.0 documentation is available in BookManager, HTML and PDF format on CD-ROM and at Compuware's Internet site:

<http://frontline.compuware.com>.

Product Support Notice

Compuware announces the discontinuance of support for:

STROBE MVS for Sysplex Release 2.3.0: April 1, 2002

STROBE MVS for Sysplex Release 2.3.1: November 1, 2002

STROBE MVS for Sysplex Release 2.4.0: November 30, 2003

STROBE Technical Support

Technical support for STROBE, iSTROBE, and APMPOWER is available via our support web site. To access online technical support, visit Compuware's FrontLine page on the World Wide Web at <http://frontline.compuware.com> and select the product STROBE and APMPOWER. You can read frequently asked questions, download product fixes, or directly e-mail questions or comments to Compuware. In North America, you can also obtain technical support by contacting Compuware at the following address or phone number:

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