IBM Fault Analyzer for z/OS™ and OS/390™ Version 2

Expert help for application developers

Highlights

See the program source statement and data item values that caused your application to "crash" (abend)

Get a detailed report analyzing why your application abended, not just a dump with system-level error messages

Read relevant message and abend code descriptions in the Fault Analyzer report, without reaching for a manual

Include your own custom message descriptions for use in Fault Analyzer reports

View contents of storage as it was at the time of an application abend

View the terminal screen image and trace table as they were at the time of a CICS transaction abend

Customize Fault Analyzer by writing your own user exits, with access to the abend information captured by Fault Analyzer

Store abend information into separate history files, and control which users can access those files

Fault Analyzer is an expert system that encapsulates the debugging experience of leading IBM software architects, developers and testers. Fault Analyzer uses this experience to determine why applications abend.

When an application abends, Fault Analyzer captures and analyzes information about the application and its environment, then generates an analysis report describing the cause of the abend. Rather than forcing application developers to interpret a low-level system dump or system-level error messages, the analysis report describes the fault in terms of the application code. Where possible, the analysis report quotes the source statement that caused the abend and, for COBOL and PL/I, the names and values of data items involved.

Features

- Fault Analyzer starts only after an application abends; it uses no processing resources while the application is running. This makes Fault Analyzer equally suited for application development, testing, or production environments.
- You do not need to recompile applications or change JCL to use Fault Analyzer. You can, if you choose, recompile your applications to produce a side file that Fault Analyzer uses to identify the abending source statement. In the absence of a side file, Fault Analyzer uses the compiler listing (which is typically larger than a side file).

- When viewing an analysis report on-screen in "interactive" mode, you can cursor-select a storage address to view the contents of storage as it was at the time of the dump.
- Fault Analyzer includes softcopy versions of selected manuals from the OS/390 Online Library. Fault Analyzer extracts message and abend code descriptions from these manuals, and inserts them into the analysis report where applicable. In some cases, Fault Analyzer provides its own descriptions offering more information than the manuals.
- Fault Analyzer allows you to provide your own descriptions for messages (including those issued by your own applications).
- You can specify criteria to exclude jobs from Fault Analyzer processing.
- If the analysis was successful, then Fault Analyzer normally suppresses the dump, preventing unnecessary use of disk space.

New features

These features have been added to Fault Analyzer since Version 1 was introduced:

- You can customize Fault Analyzer by writing user exits (in languages such as Assembler, C, COBOL, PL/I or REXX). For example, you can write user exits to:
  - Override Fault Analyzer options
  - Access compiler listings that are compressed, or only available via a proprietary access method
  - Provide custom explanations for particular message IDs, to be included in the analysis report when these messages occur
  - Notify specific people about an abend
- For CICS transaction abends, the analysis report includes the trace table and last terminal screen image.
- For CICS system abends, the analysis report includes CICS domain control block navigation, mapping, and identification of CICS environment abnormal conditions.
- You can logically group fault history files, and restrict each user's access to particular groups.
- You can transfer fault records between history files on different OS/390 systems, for analysis on remote systems.
- When an application abends during a call to the MQSerieis API, Fault Analyzer will (given a compiler listing or side file) identify the program source statement that called the API.

Using Fault Analyzer

You can use Fault Analyzer in three modes:

Real-time analysis: Fault Analyzer includes three "exit" programs (for CICS, Language Environment, and OS/390) that it adds to the normal abend processing for these environments. When an application abends in any of these environments, the Fault Analyzer exit starts real-time analysis. After abend processing, you can view the analysis report in the job output, or using the Fault Analyzer ISPF interface.

Real-time is the only mode that captures a dump and other information when an application abends. The other two modes reanalyze the dump (if one was taken) and information gathered in real-time, as described below.

Note: To identify the abending source statement, Fault Analyzer requires either a compiler listing or a side file (produced by recompiling your program with certain options, and then running the side file generation utility). If neither of these were available during real-time analysis, but you later create them (or make them available to Fault Analyzer), then you can use the reanalysis modes to identify the abending source statement.

Batch dump reanalysis: Generates a new analysis report based on the dump and information gathered in real-time, but with potentially different Fault Analyzer options specified, or with compiler listings or side files made available. You can submit a Fault Analyzer batch mode job using either the Fault Analyzer full-screen ISPF interface or your own JCL.

Interactive dump reanalysis: Runs under ISPF. Enables you to navigate on-screen through a formatted, structured view of a fully detailed reanalysis. Lets you view working storage and control blocks as they were at the time the dump was written.

Supported environments

You can use Fault Analyzer with the following OS/390 application environments:

COBOL	CICS®
PL/I	IMS
Assembler	DB2®
UNIX® System Services	C/C++
Language Environment®	

Required software

Fault Analyzer (5655-G74) requires one of the following:

- OS/390 Version 2 Release 6 (5647-A01) or later

or

- z/OS Version 1 Release 1 (5694-A01) or later

To use Fault Analyzer with CICS applications, one of the following is required:

- CICS/ESA® Version 4 Release 1 (5655-018) or later

or

- CICS/TS for OS/390 Release 1 (5655-147) or later

For more information

Contact your IBM sales representative or IBM Business Partner, or visit the Fault Analyzer Web site at:

www.ibm.com/servers/eserver/zseries/zos/pdpak/

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