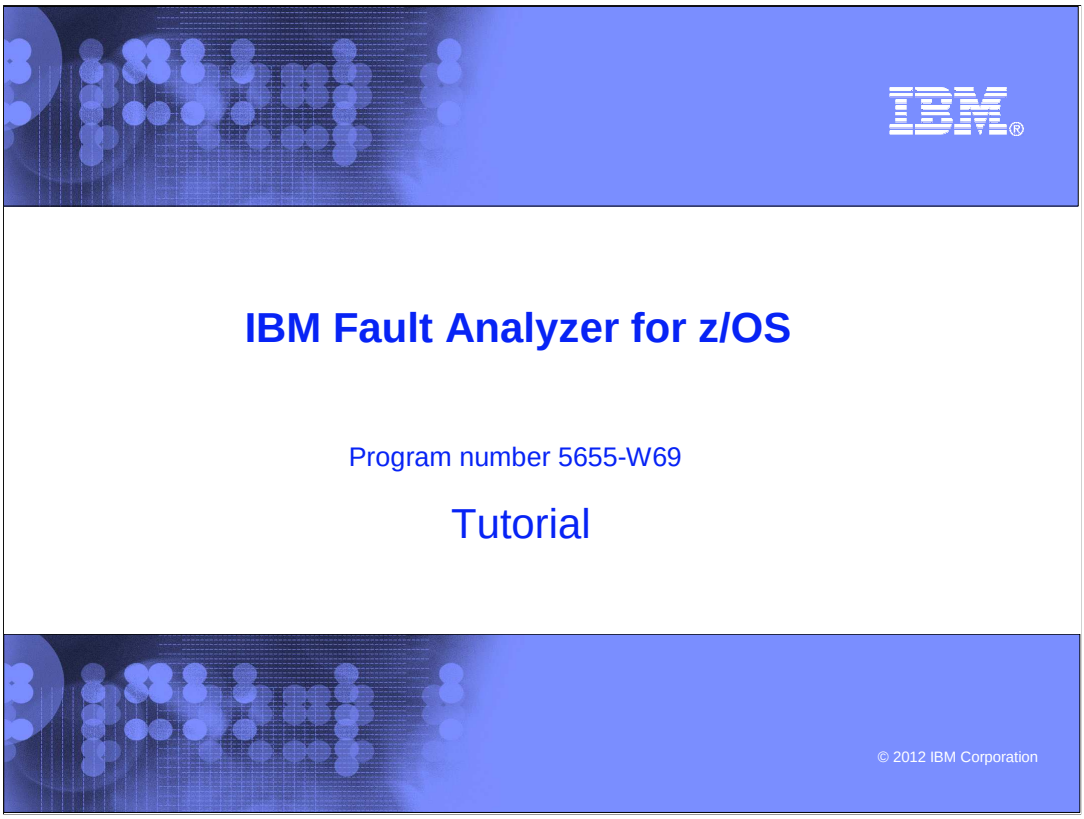
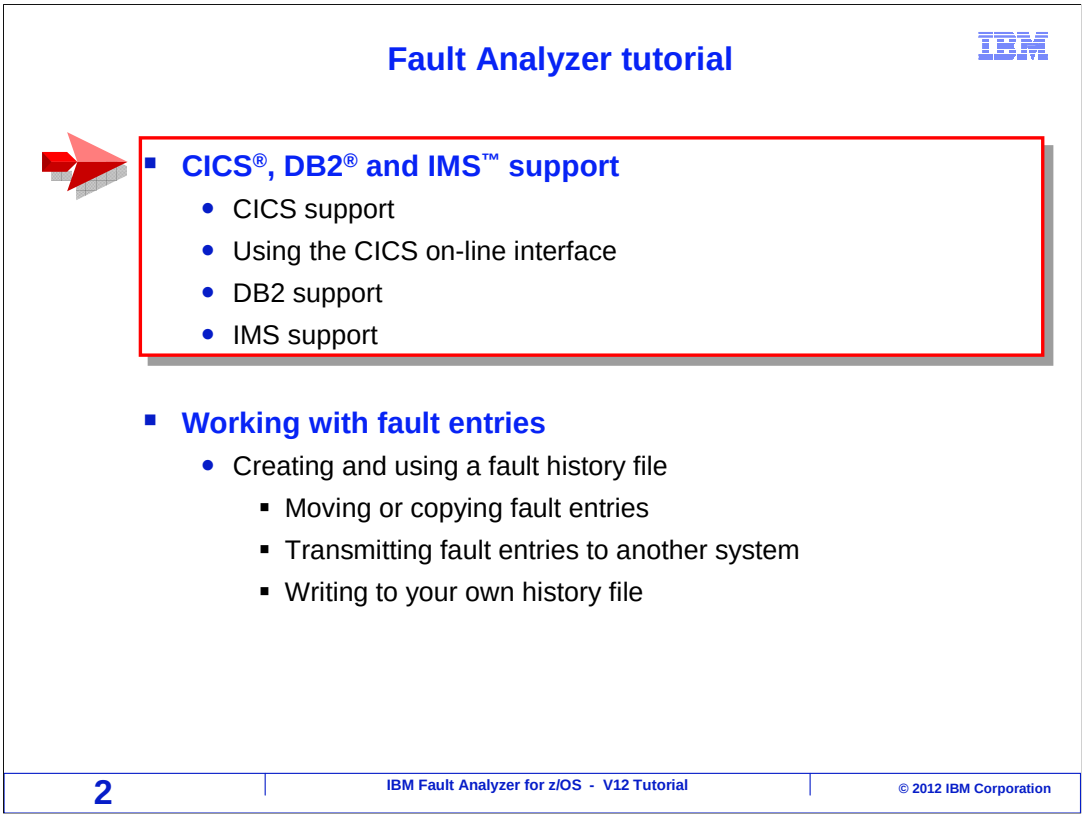


This is the tutorial for IBM's Fault Analyzer for z/OS®, one of the IBM zSeries® problem determination tools.



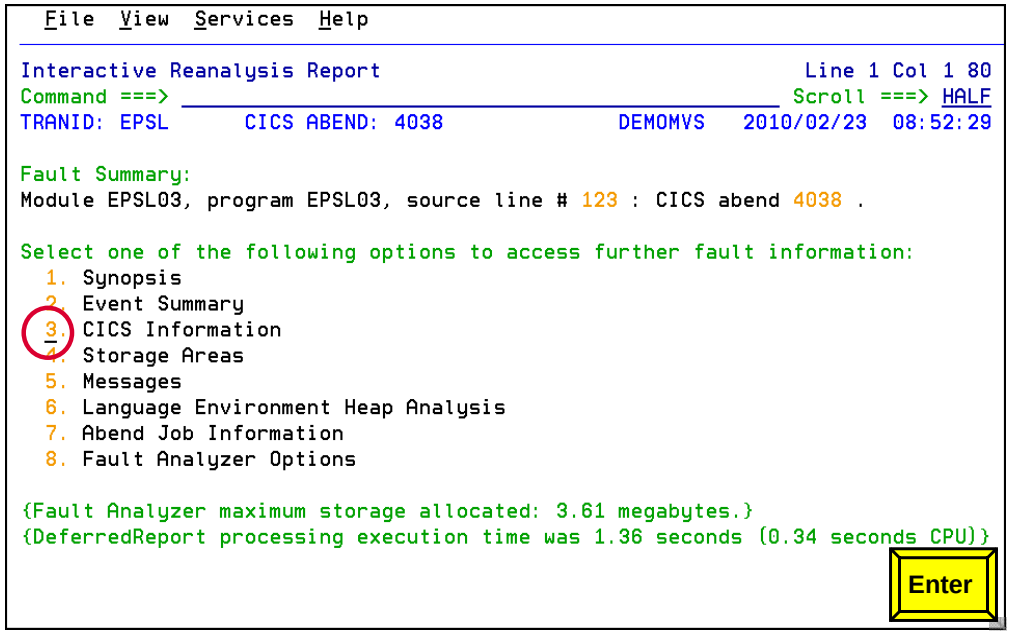
This section describes additional information reported for CICS applications, IMS applications, and for applications that access DB2 databases.

CICS transaction support

- Additional information available for CICS applications
  - CICS control blocks
  - Transaction storage
  - Last screen buffer
  - CICS trace table
  - CICS abend code explanation
- View in real-time report or with reanalysis
- Additional information is automatically generated by Fault Analyzer

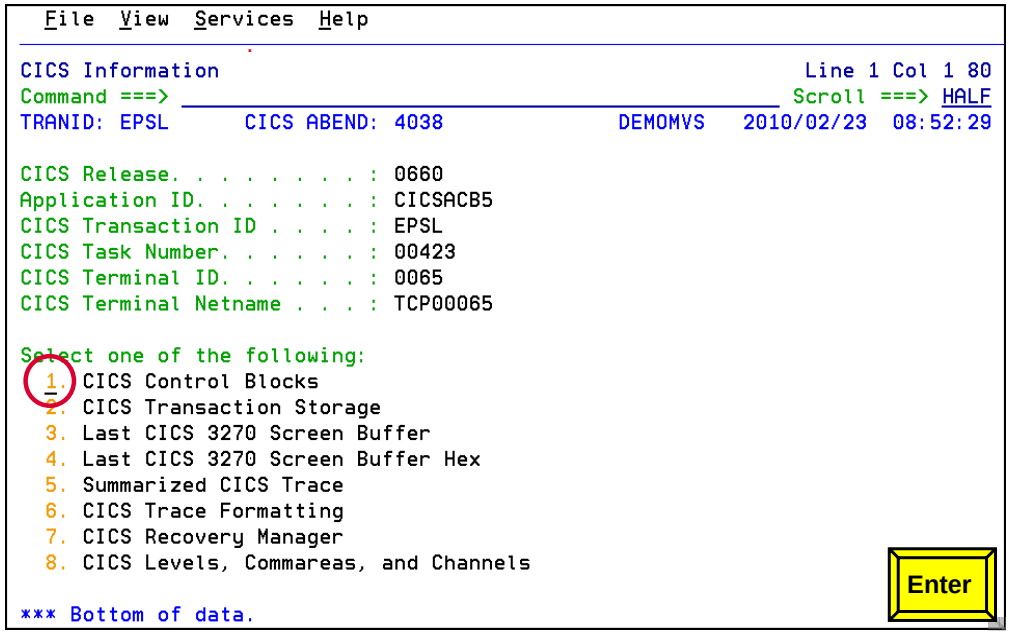
For CICS abends, fault analyzer will report CICS control blocks, transaction storage, a picture of the last screen buffer, the CICS trace table, and an explanation of the CICS abend code. CICS information is available automatically in the real time report and in reanalysis.

Select CICS information



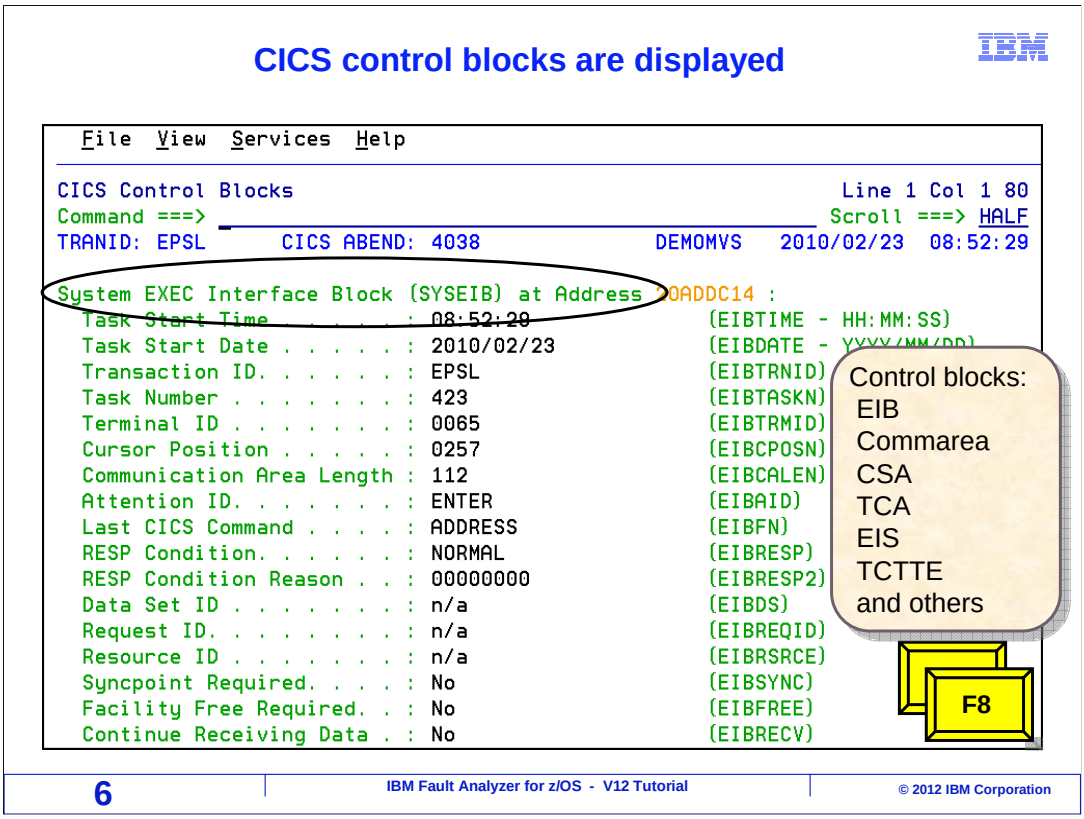
When you use interactive reanalysis, there is a point-and-shoot link for CICS information on the interactive reanalysis main menu. Put your cursor on the CICS Information field, and press enter.

Select CICS control blocks



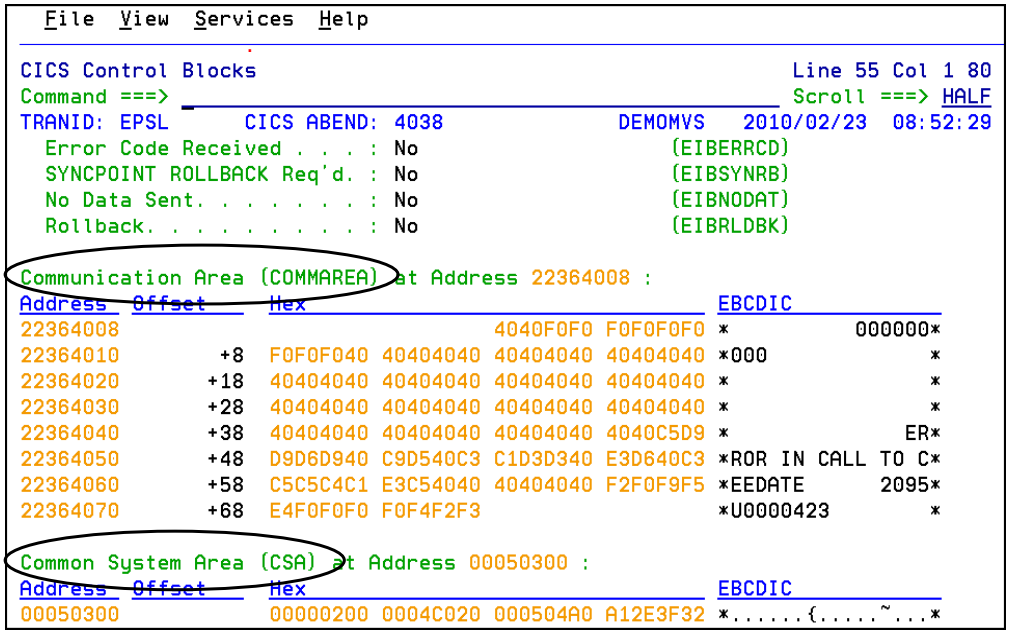
That takes you to the CICS information panel, where the CICS point and shoot fields are shown. For example, you can select the “CICS control blocks” field. Enter.

CICS control blocks are displayed



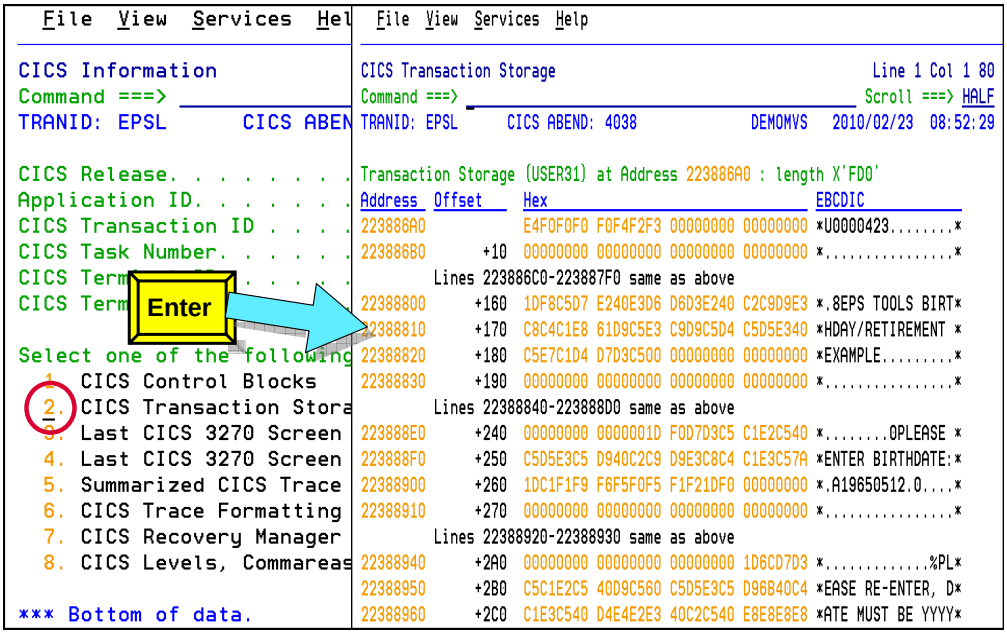
Several control blocks may be available, like EIB (the execute interface block), commarea, CSA and others. The EIB shows useful information, including the transaction id and the terminal id. When you are working on 3270 applications, the attention id shows the last attention key that was pressed by the user. In this case it was "enter". It could also be a PF or PA key. That is good information because it helps you understand what the user was doing that may have caused the abend. By scrolling forward, F8…

CICS communication and common system areas



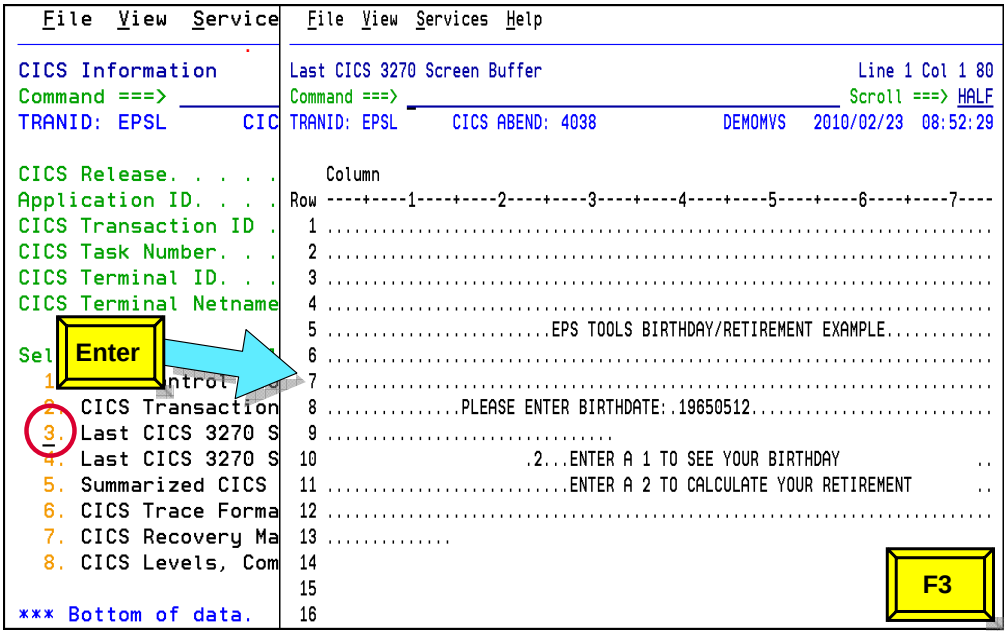
You can see other CICS control blocks that fault analyzer captured. Addresses can be selected with point and shoot selection.

CICS transaction storage



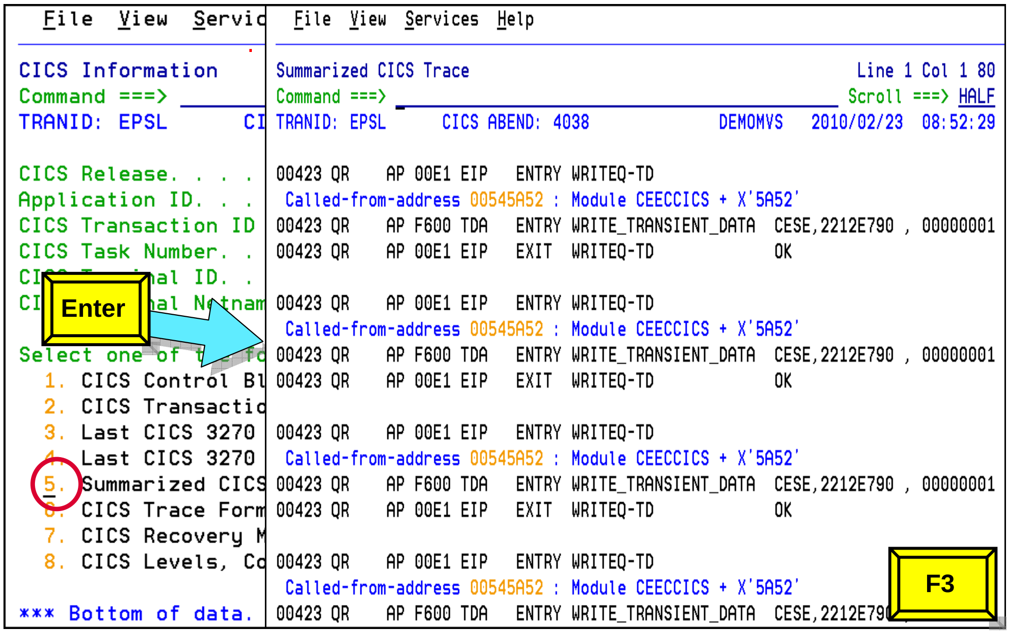
Select the “CICS transaction storage” point-and-shoot field to see storage that was allocated by application programs or by the system for the transaction.

Last CICS 3270 screen buffer



The “last CICS 3270 screen buffer” point-and-shoot field shows the user’s screen display. This lets you see where the user was in the application and what they were doing just before the abend occurred. Notice that it even shows the input data that they typed onto their screen.

CICS trace table



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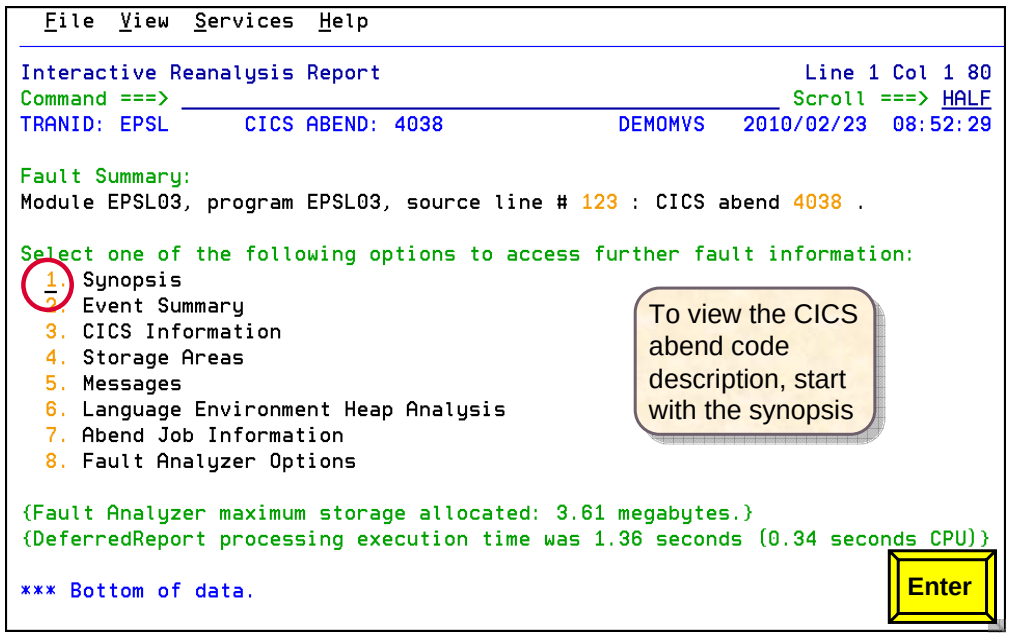
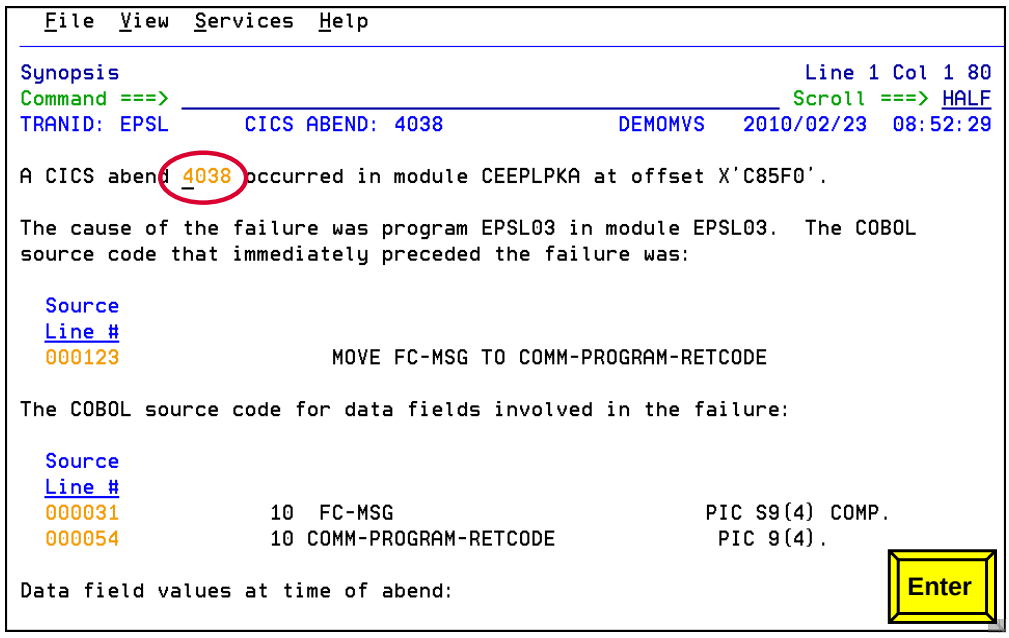
When you select the "Summarize CICS trace table" point-and-shoot field, you see the internal CICS trace table. This shows the EXEC CICS statements that your program issued before the abend. This can also be useful information because it gives you a history of what the program did leading up to the abend.

View CICS abend code description



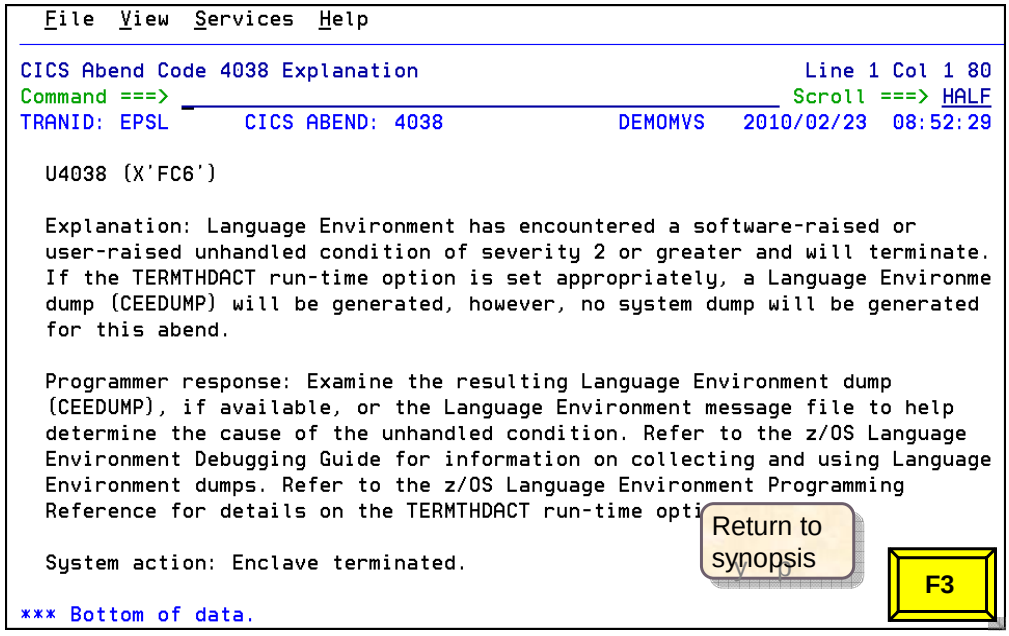
Fault analyzer can look up your CICS abend codes. For example, starting at the reanalysis main menu, you can go to the synopsis section. Enter.

Cursor select the abend code



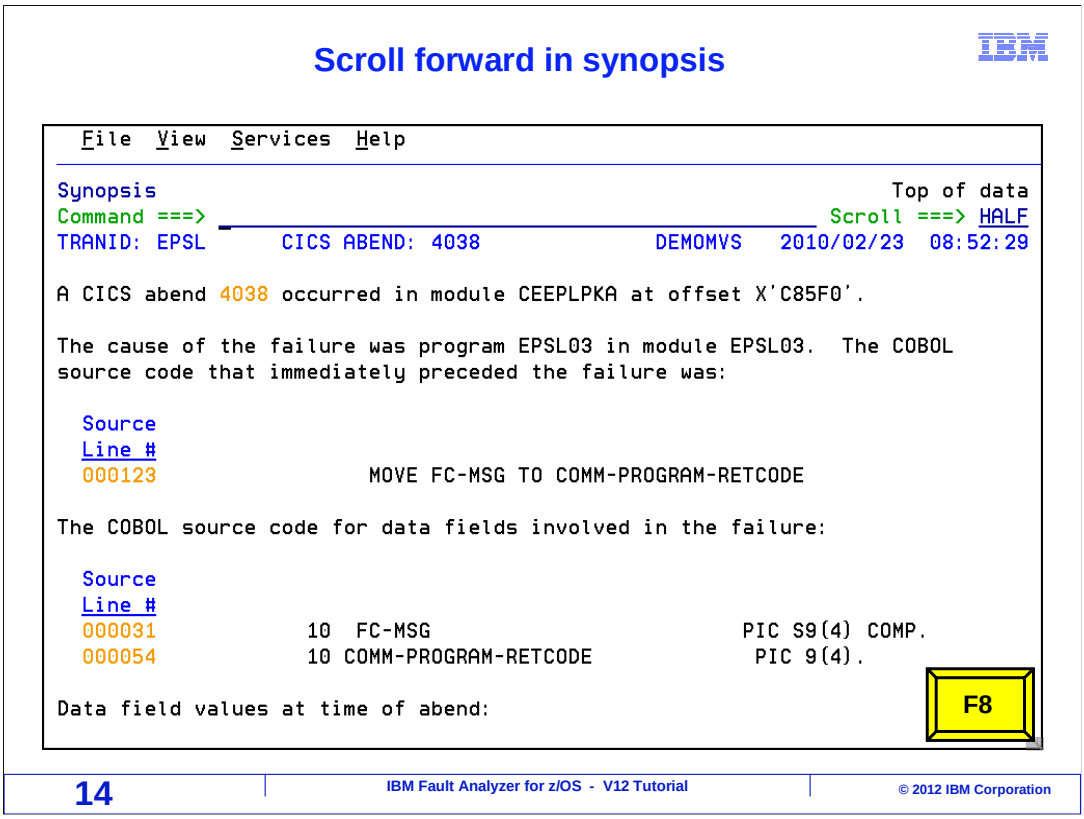
Then put your cursor on the abend code point-and-shoot field. When you press Enter…

Abend code description is displayed



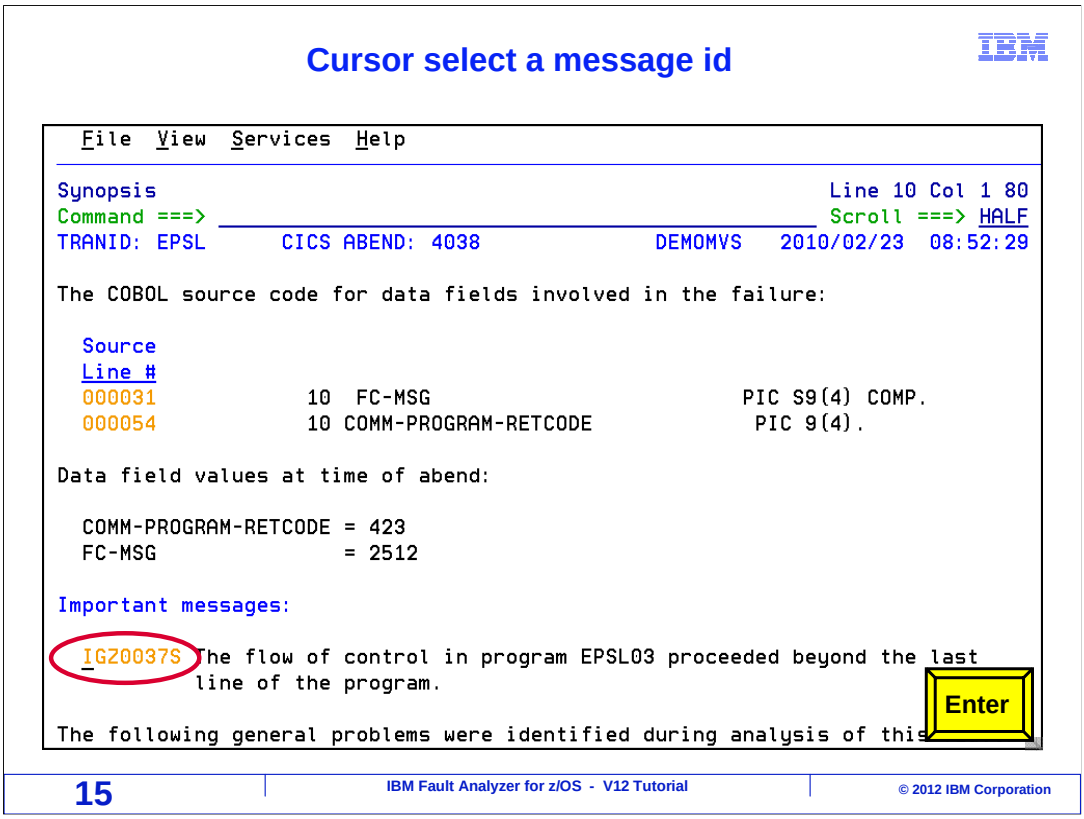
It looks it up in book manager and shows the description of the CICS abend code. F3 returns to the synopsis.

Scroll forward in synopsis



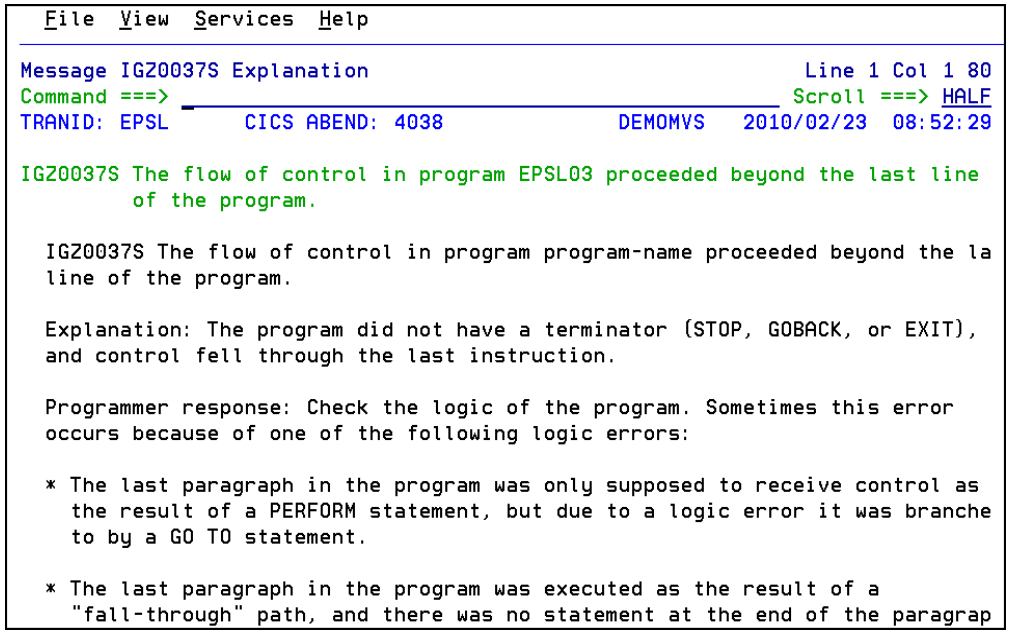
Scrolling down from the top of the synopsis section.

Cursor select a message id

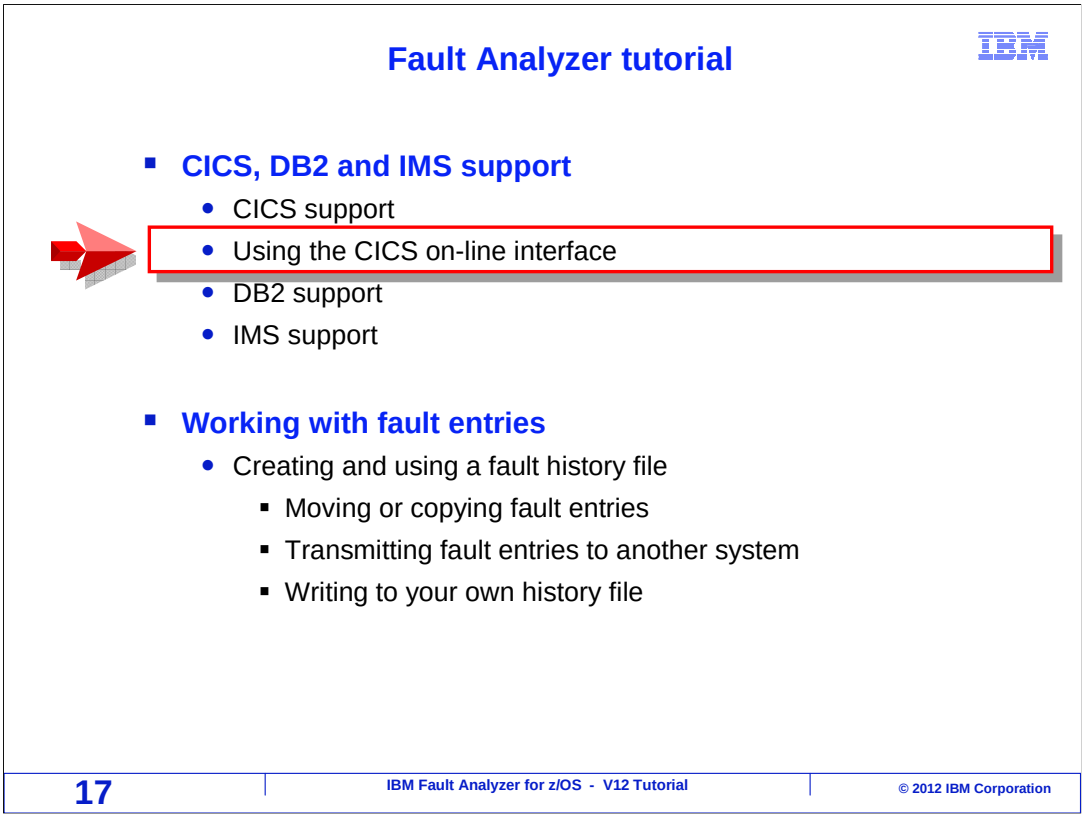


For some abends there may be other important messages that were issued. They are displayed in the synopsis, and to see one, tab your cursor to it and press enter.

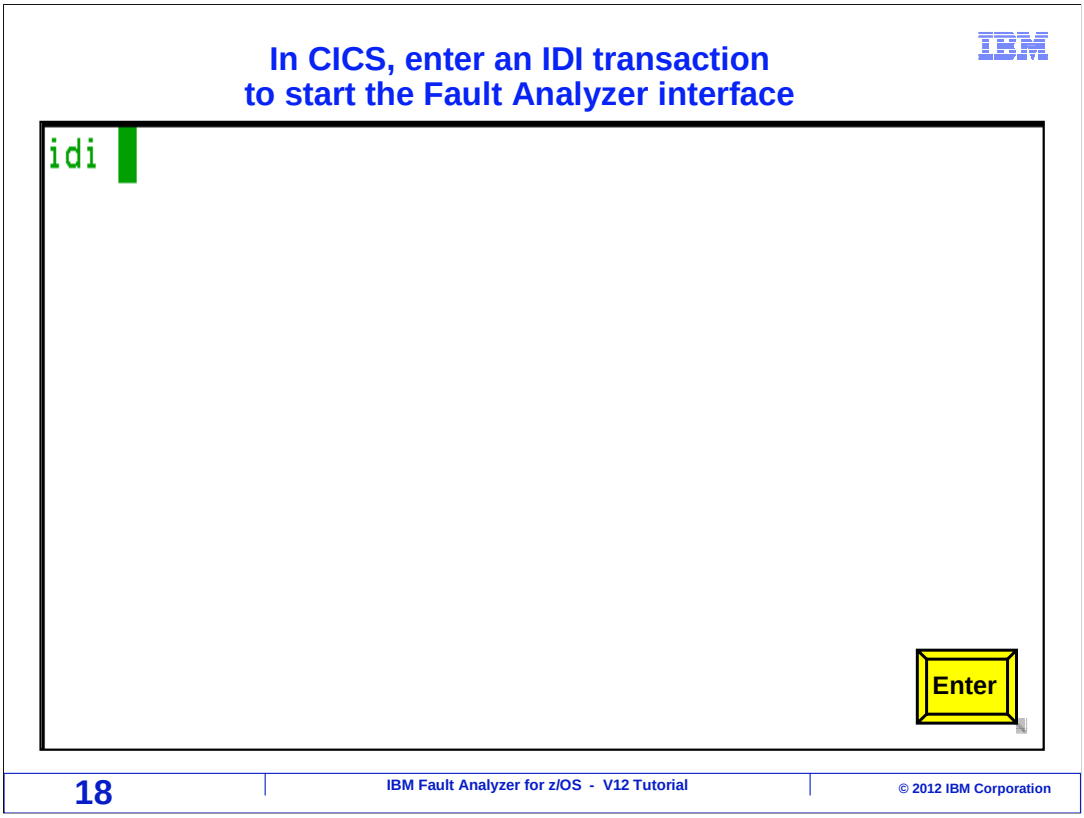
Message description is displayed



The message is looked up in book manager and the explanation text is displayed.

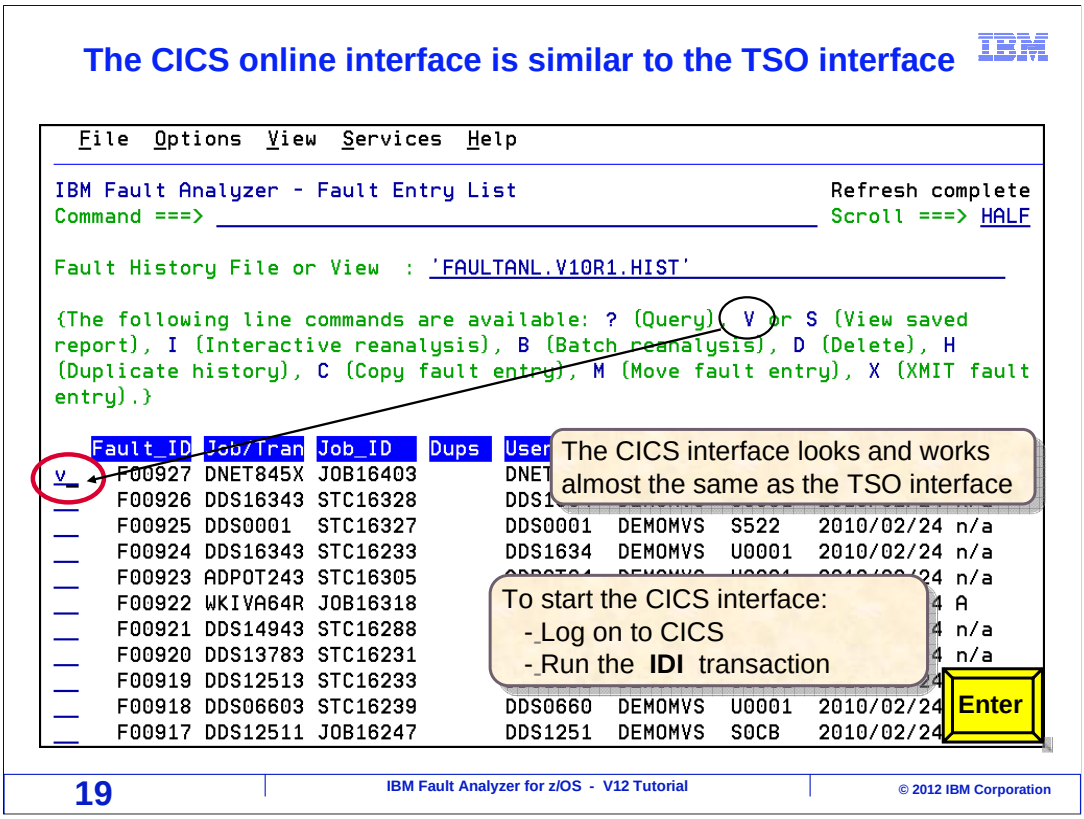


Fault Analyzer provides other interfaces in addition to access from TSO interface. Next, you will see how to use the CICS interface.



The CICS interface may or may not have been installed on your system. If you are not sure, and prefer to access fault analyzer from CICS, contact your systems programmer or help desk to find out.

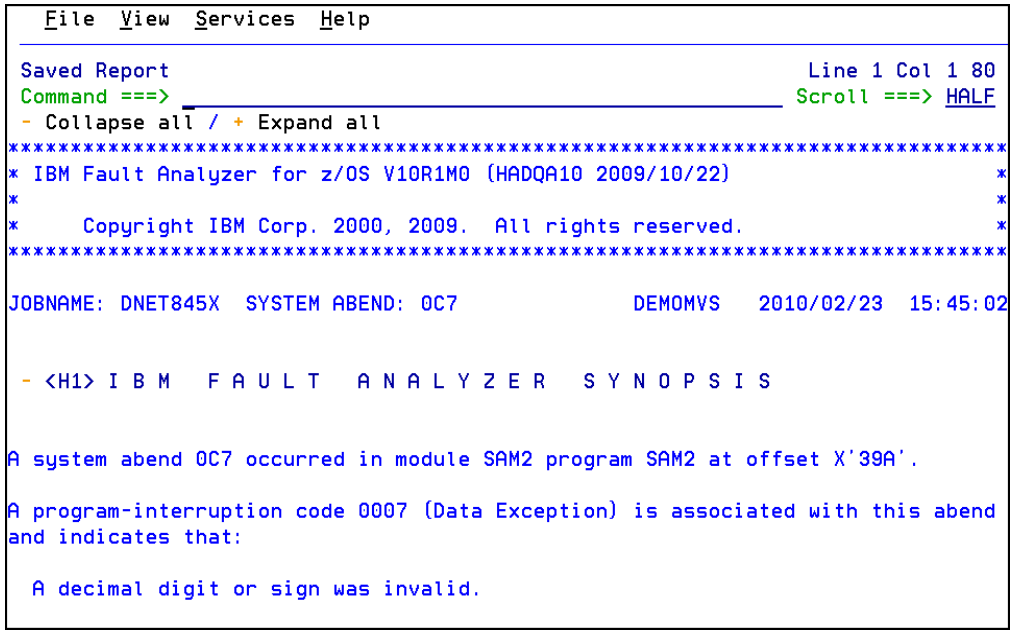
To start the CICS interface, first, log on to CICS, clear the screen, and enter an IDI transaction.



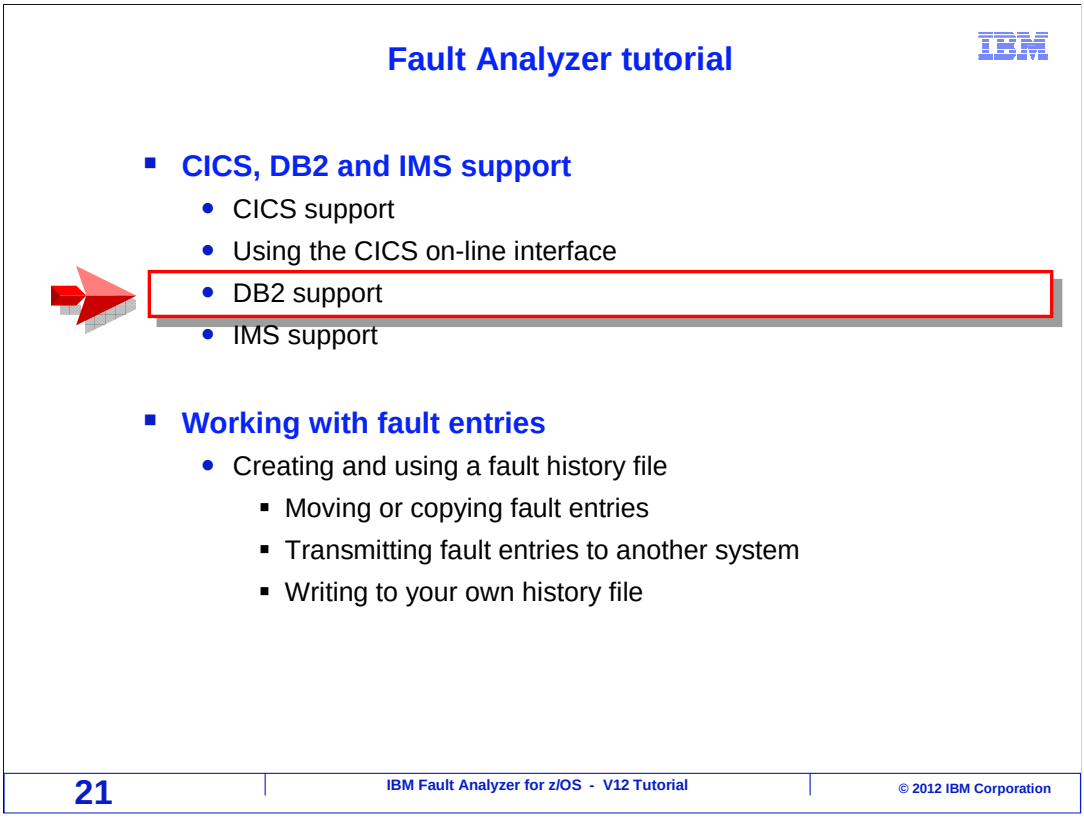
The CICS interface looks and works the same as the TSO on-line interface. There are only very minor differences that affect a few options settings, and you may not notice any difference at all. Regardless of which interface you use, you will see all of the abends in the fault history files. So you can see batch, CICS, and all other types of abends from either interface. Use which ever interface you prefer.

Just as in the TSO interface, an I line command starts interactive re-analysis. In this example, a V line command is entered to view a real-time analysis report.

Real-time analysis report



The real-time report is displayed. You see the same abend information in the CICS interface as you do in the TSO interface.



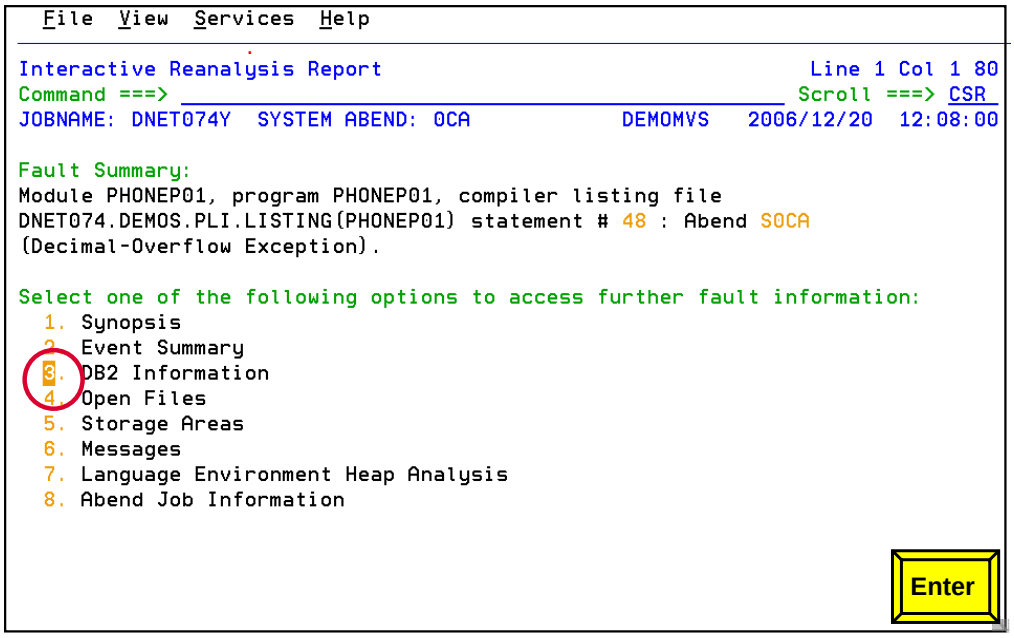
For applications that use DB2, Fault Analyzer makes additional information available.

DB2 analysis

- Additional information available for DB2 applications
  - DB2 subsystem
  - Plan information
  - Owner and authorization IDs
  - Last executed SQL statement
  - Host variables
  - SQL communications area
  - SQLCode and SQLState explanations
- View in real-time report or with reanalysis
- Additional information is automatically generated by Fault Analyzer

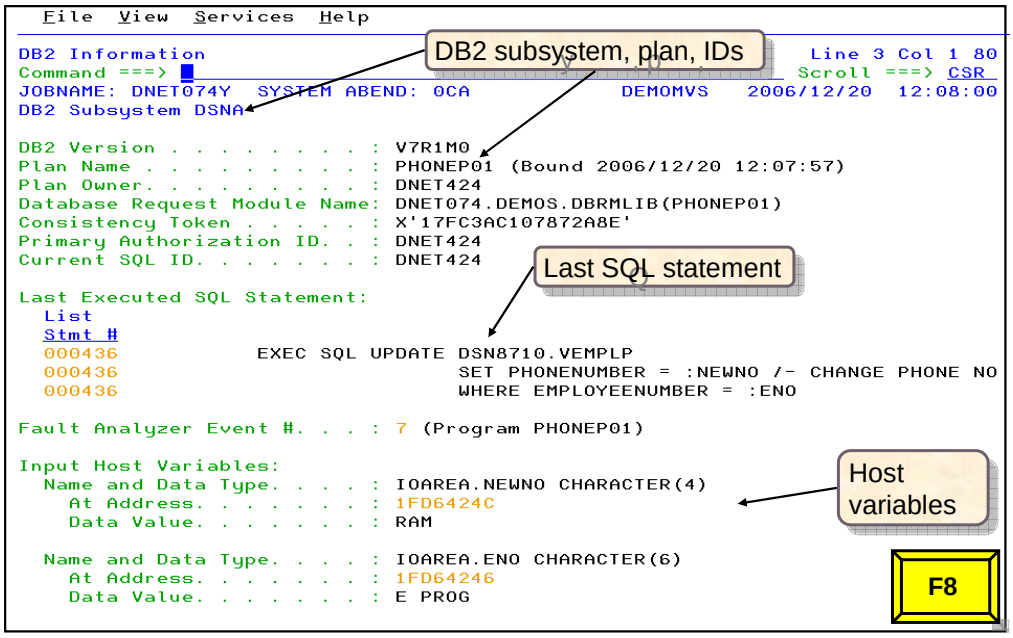
Depending on the application and type of abend, you may see the DB2 subsystem, the name of the Plan, owner and authorization IDs, the last executed SQL statement, and explanations of SQL code and SQL state. This information shows up automatically in the real-time report and in reanalysis.

Select DB2 information



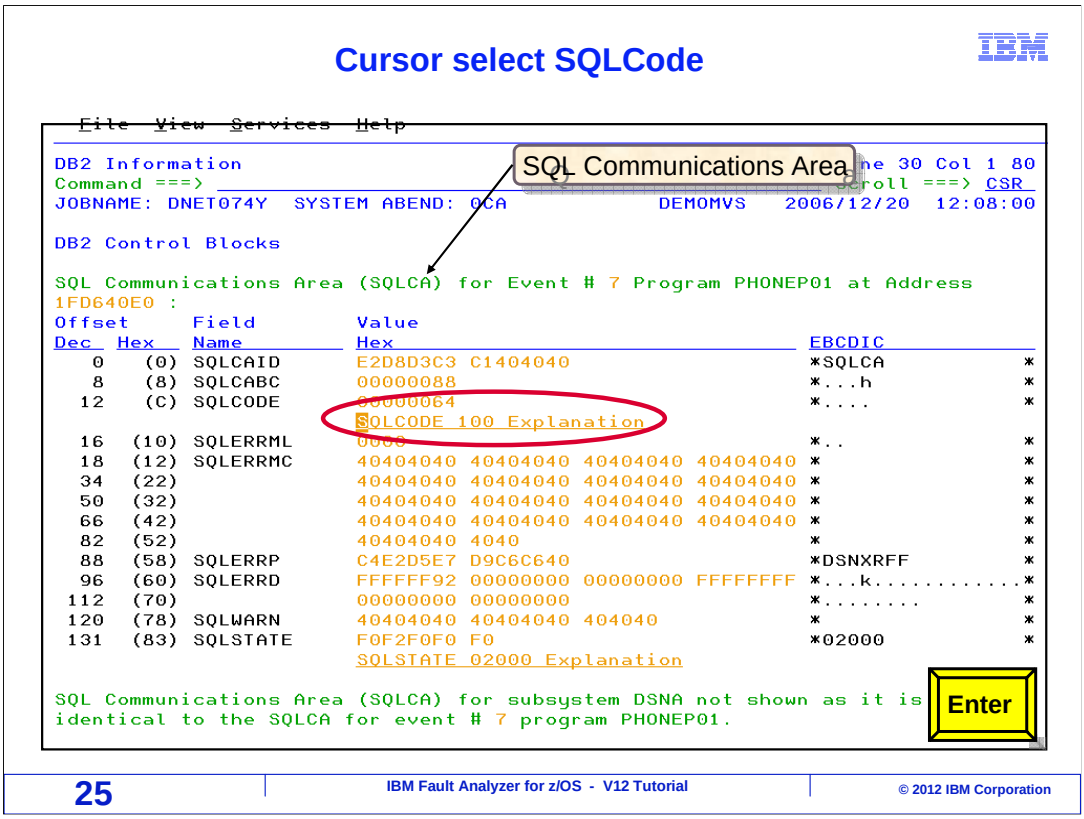
When you use interactive reanalysis, a point-and-shoot field for DB2 information appears automatically. Tab to it and press enter.

DB2 information is displayed, scroll down to view



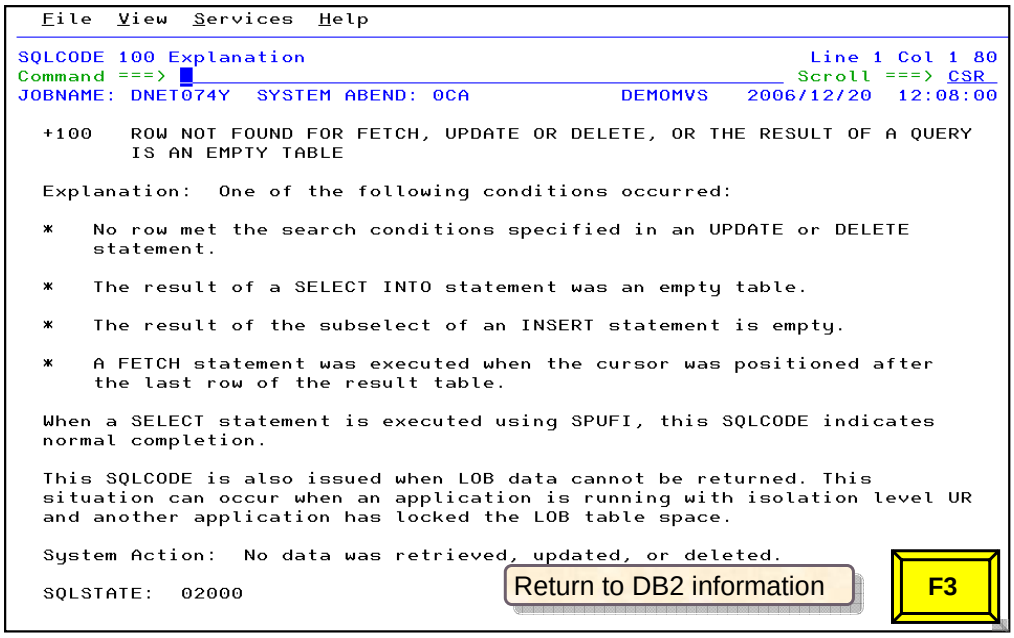
Several items are reported here including the DB2 subsystem, the plan name, authorization ID, and SQL ID. One of the most important things shown is the most recently executed SQL statement and host variables. Scroll forward with F8.

Cursor select SQLCode



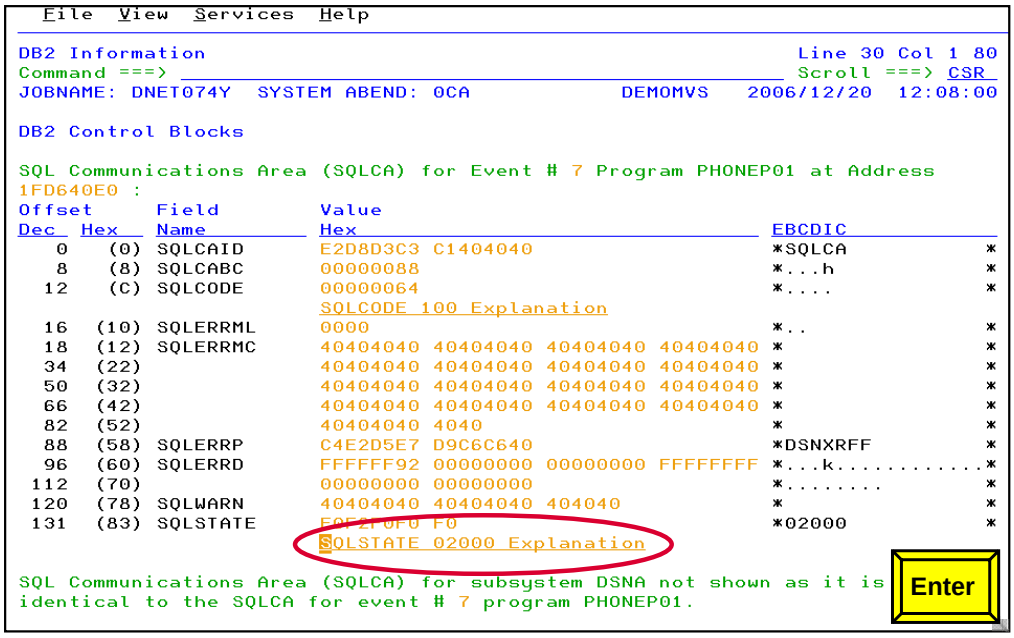
Here is the SQLCA (or SQL communications area), which includes the SQL code and SQL state from that last executed SQL statement. You can look up the SQL code by putting your cursor on it and pressing enter.

SQLCode explanation is displayed



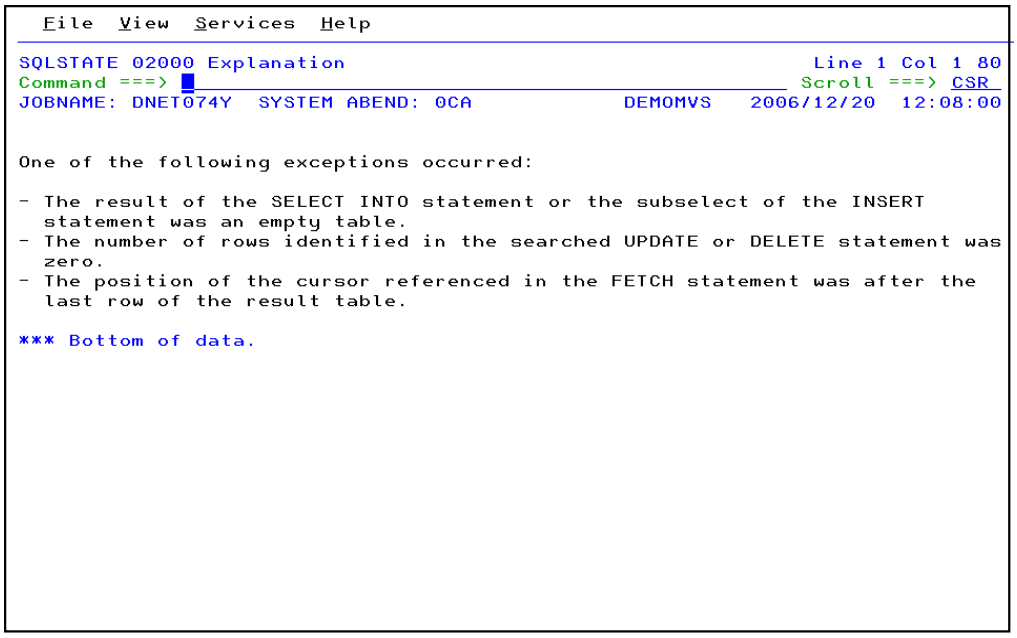
The SQL code was looked up in book manager and the description text is displayed. F3 returns to the previous screen.

Select SQLState

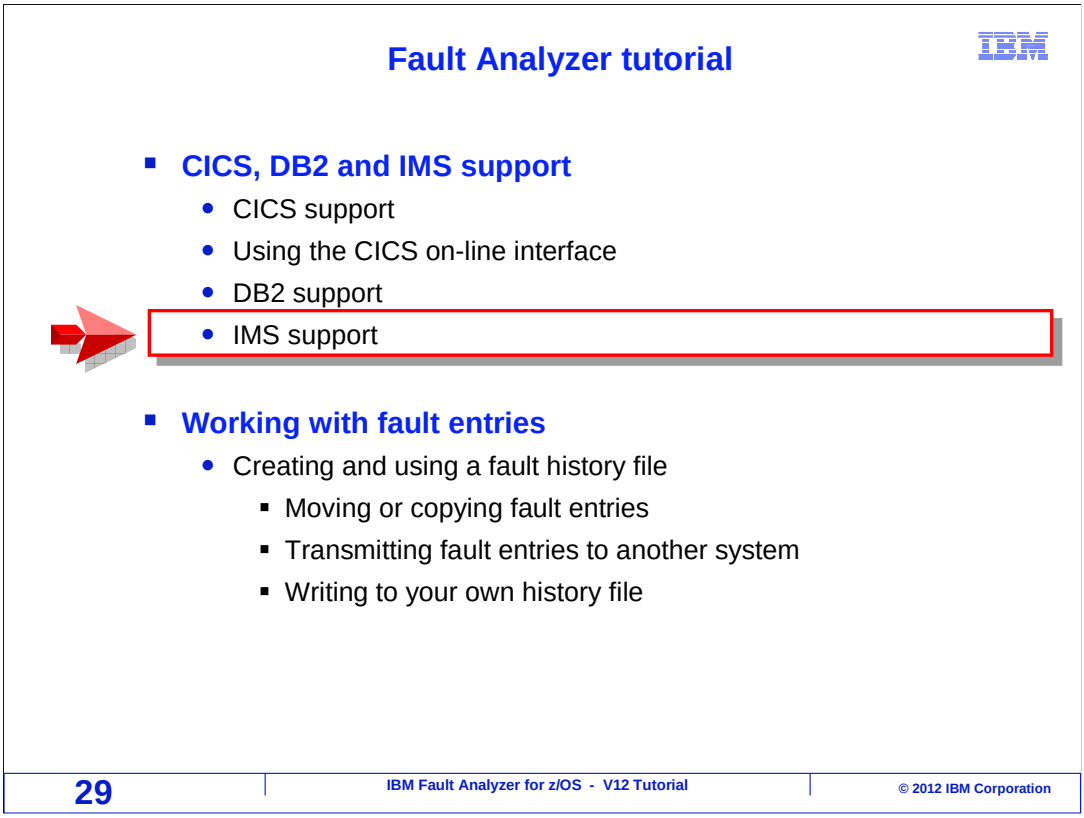


Put your cursor on the SQL state field and press enter...

SQLState explanation



… and it looks up the SQL state and shows the description.



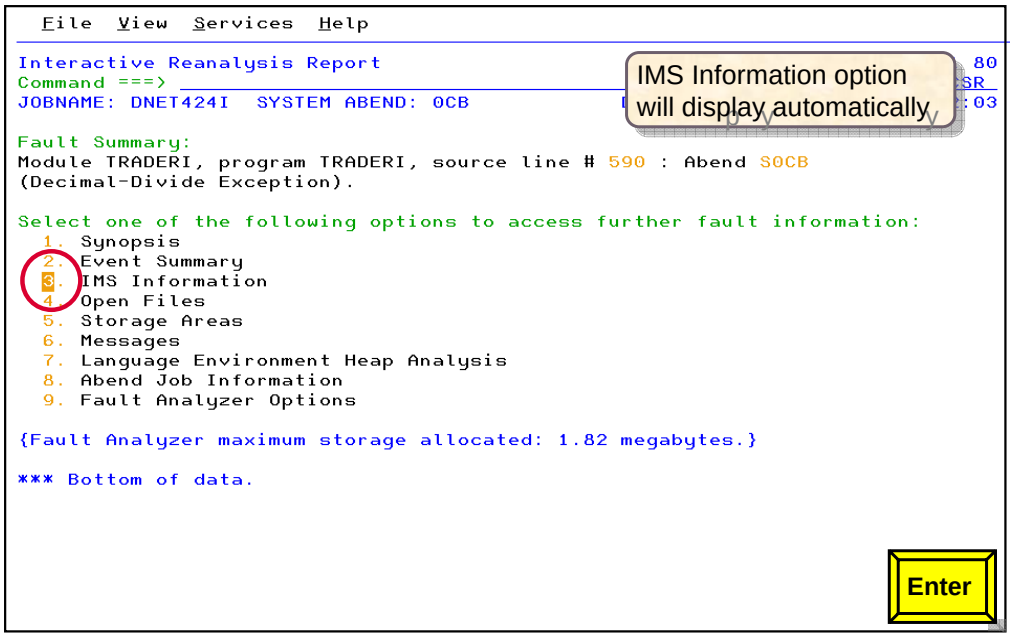
For applications that make IMS calls, Fault Analyzer captures additional information.

IMS analysis

- Additional information available for IMS applications
  - IMS subsystem
  - Region type
  - PSB
  - IOPCB
  - Database PCBs
    - Segment
    - Key feedback area
    - Call trace
  - Call counts
  - IMS abend code explanations
- View in real-time report or with reanalysis
- Additional information is automatically generated by Fault Analyzer

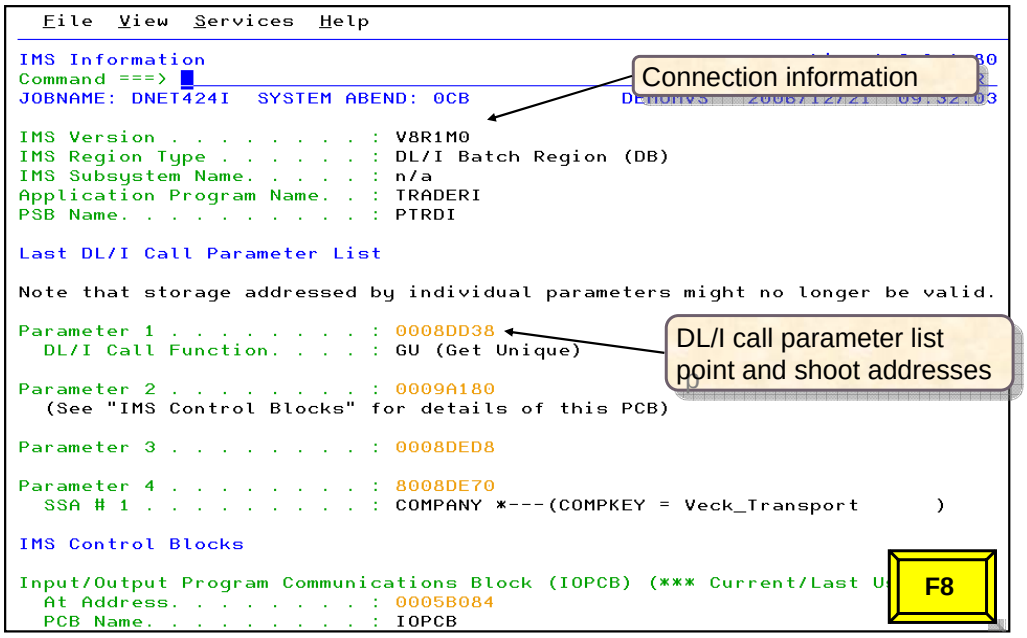
In real-time reports and reanalysis, you can see the IMS subsystem, the type of IMS region, the PSB, call count statistics, and an explanation of IMS abend codes.

Select IMS information



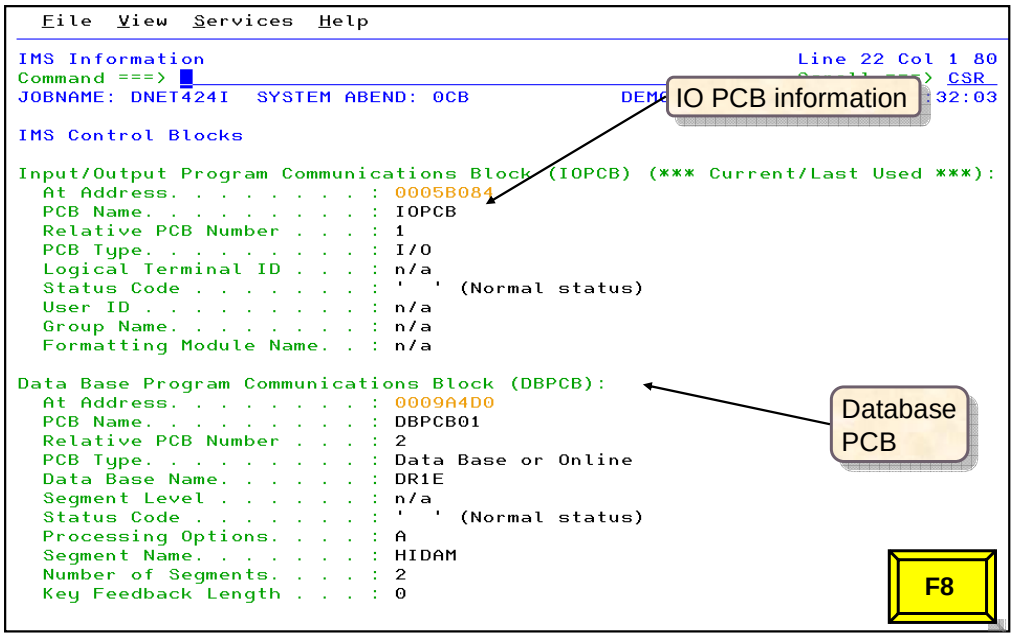
When using interactive reanalysis, select the “IMS information” point-and-shoot field, and press enter.

IMS information is displayed, scroll down to view



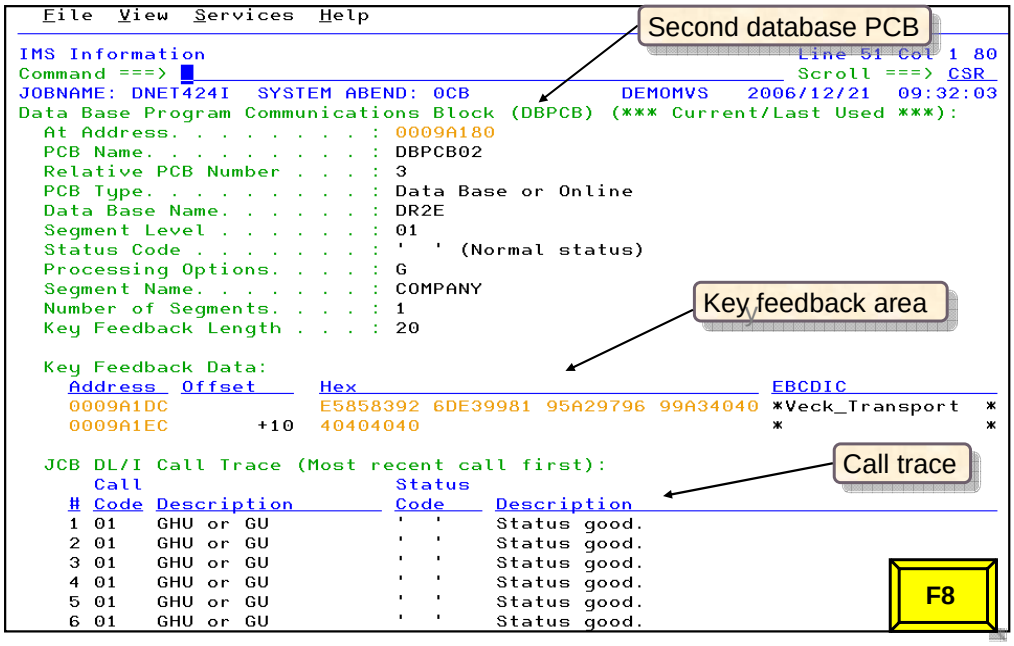
Information shown here include the IMS version, the IMS region type, the name of the PSB, and the parameter list from the last DLI call. Notice that the addresses of the parameters are point-and-shoot fields, so you can quickly reference them to see storage at those locations. Scroll forward with F8.

IMS data captured during abend is displayed

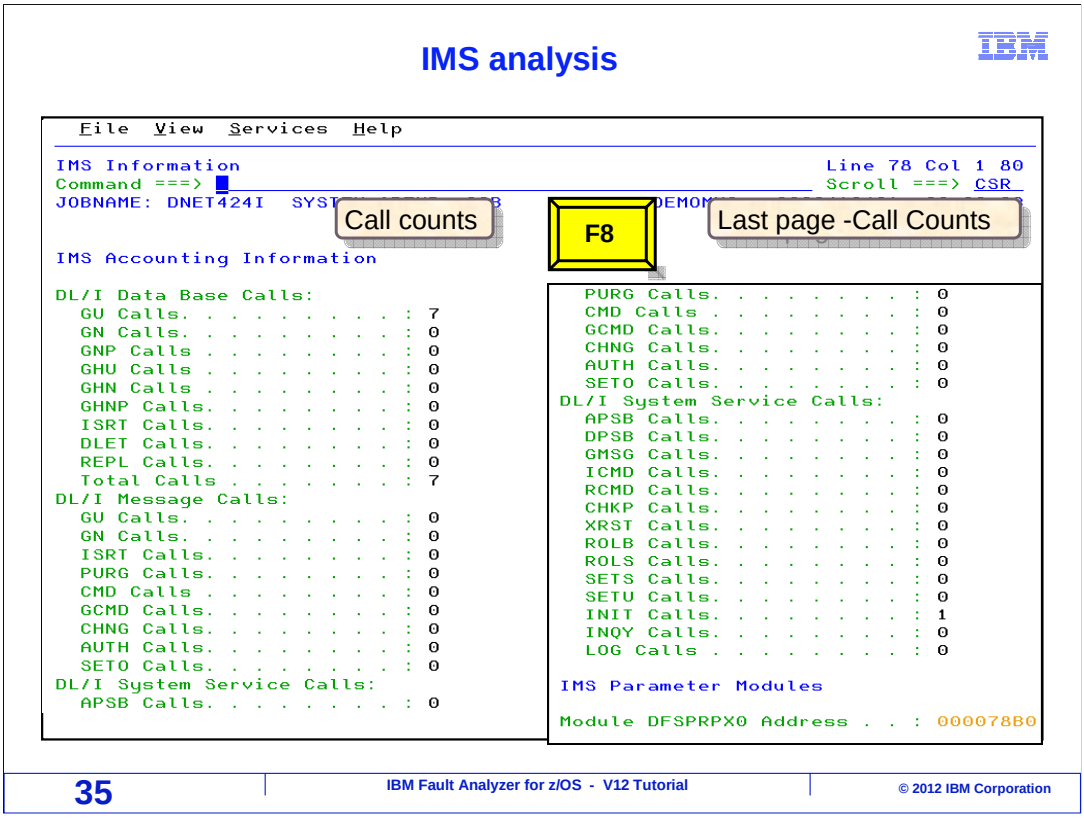


Information about each of the PCBs are reported. In this example an I/O PCB is followed by a data base PCB. Scrolling forward again.

Continue to scroll down to view IMS information



Here is a second data base PCB. Each PCB is reported. In this PCB, notice that the key feedback area is shown, which can be important information. Also notice that a DLI call trace is shown. This is also good information because it gives you a history of what your program did before the abend. Scrolling forward, F8.



Accounting information is shown. This is a set of statistics gathered from IMS internal control blocks, so you see, for example, how many Get Uniques, Get Nexts, GNPs, and other calls were made by the program.

That is the end of this section, working with CICS, IMS, and DB2 application abends.

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