IBM®

Training for the
IBM® z/OS® Problem Determination Tools

Workshops:

File Manager Base
   (for z/OS data sets)

File Manager / DB2®

File Manager / IMS™

Fault Analyzer

Debug Tool

Application
   Performance
   Analyzer

Workload Simulator

Give your staff the skills they need to get the most from the IBM z/OS Problem Determination Tools.

Select workshops for the products you need, and at the right level of detail.

Expert instructors deliver maximum skills in the allotted time, and can provide hands-on training on your systems.

You get the right fit. We'll work with you to develop a training plan to meet your objectives.

IBM z/OS PD Tools Workshops Overview

The following IBM zSeries PD Tools workshops can be delivered in any combination, and with a great deal of flexibility:

- File Manager Base (for z/OS data sets), DB2 data, and IMS data
- Fault Analyzer
- Debug Tool and Debug Tool Utilities and Advanced Functions
- Application Performance Analyzer
- Workload Simulator

Training formats:

- **On-site, hands-on workshops**

    For the highest quality learning experience, we recommend hands-on workshops. Training is a combination of lab exercises performed on your system, classroom lecture, and product demonstration. It is best to limit class sizes to 15 people or fewer, although more can be accommodated.

    Participants receive a spiral-bound training manual for each product. Electronic copies of the training manuals in PDF format are also available.

- **On-site, lecture-only workshops**

    We deliver the same presentation material as in the hands-on workshops, but without the hands-on labs. This is a good option when you don't have a training facility with user workstations, or when you need to train a larger group. Lecture-only workshops require less time than hands-on workshops.

    Participants receive a spiral-bound training manual for each product. Electronic copies of the training manuals in PDF format are also available.

- **Webcast, lecture-only workshops**

    We deliver the same presentation and discussion as in the on-site lecture-only workshops, but in a web conference. The participants join using a telephone and a workstation with an internet connection from multiple locations. In this interactive session, participants can ask questions and view live demonstrations. This is a good option if you have a lot of people in many locations that all need training quickly. A webcast can reduce your cost since the instructor and participants may not incur travel expenses.

In addition to classroom training, we offer free software customization assistance in with the hands-on workshops. The instructor works with your product installers before the workshops to review product installations and make configuration recommendations. Because the tools should be configured to fit your environment, and because some of the tools integrate tightly with your application development processes, this assistance can enhance the effectiveness of the training and can be a valuable part of implementation.

IBM z/OS PD Tools Workshop Durations

This chart shows typical workshop durations. Since workshop durations can vary depending on your system configuration and your desired level of detail, please work with your IBM representative before finalizing a schedule.

** Workshop Duration Planning Estimates **

Workshop	On-site hands-on (recommended)	On-site lecture only or Webcast
File Manager Base (for z/OS Files)	1 day	5 hours
File Manager for DB2 data	$^1/_2$ day	2.5 hours
File Manager for IMS data	$^1/_2$ day	2.5 hours
Fault Analyzer	$^1/_2$ day	2 hours
Debug Tool *A Debug Tool workshop covers various languages and environments. The duration of a workshop depends on which topics are covered.* **Typical Debug Tool workshop** *Includes detailed topics for debugging batch and CICS® applications with supported COBOL and PL/I compilers, using the standard debugging interface.* **Extended workshop with one or more of the following topics** ▪ *Remote debugging* ▪ *Debugging IMS applications* ▪ *Debugging assembler programs* ▪ *Debugging OS/VS COBOL programs*	 1 day 1 $^1/_2$ days	 4 hours 4 hours + ½ hour per additional topic
Application Performance Analyzer	$^1/_2$ day	2 hours
Workload Simulator	$^1/_2$ day	3 hours

Planning your Training

As you plan your training, consider which workshops to schedule, the locations and number of people to train, and the availability of your training facilities. We will work with you to develop an effective training schedule.

To help with your planning, here is a typical agenda for our most popular combination of workshops:

Monday   The instructor travels to your site.

Tuesday   The instructor consults with your software installers to assist with product customization questions and recommendations. Sample files and programs for the hands-on labs are installed.

Wednesday   **File Manager Base hands-on workshop**
                8:30 AM – 4:30 PM

Thursday   **File Manager for DB2 hands-on workshop**
                8:30 AM – 12:00 Noon
                Fault Analyzer hands-on workshop
                1:00 PM – 5:00 PM

Friday   **Debug Tool hands-on workshop**
                8:30 AM – 5:00 PM

This schedule does not include all available workshops. You can request any combination of workshops and we'll adjust the schedule accordingly.

Cost
$3000 per day plus the instructor's travel expenses.

Getting Ready for a Workshop

We will work with you to customize your training schedule, ensuring that your training sessions are effective and your staff gets the skills they need.

Prior to training, IBM will:
- Provide printed copies of the workshop manuals, up to 20 per class session.
- Provide electronic copies of the workshop manuals, in PDF format, upon request.
- Provide sample files and programs used during hands-on classes, and instructions for installing them on your systems.
- At your request, consult with your product installers to answer product setup questions and offer recommendations.

To prepare for training:
- Work with your IBM representative to plan and schedule your workshops.
- Schedule your training rooms.
- Identify and notify students for each class.
- Provide a projection unit that accepts a standard PC monitor cable from the instructor's laptop.
- For hands-on workshops:
    - Verify that current versions of the PD Tools products, with current maintenance, have been installed and verified.
    - Provide the instructor access to your mainframe system for lab walkthroughs and assistance, including workstation and TSO access.
    - Ensure that each student is authorized to access files and systems used during the workshop.
- For Webcast workshops, ensure that participants have internet access to the IBM webconferencing service.

IBM File Manager for z/OS Data Workshop

Learn to use File Manager to work with data in z/OS data set types such as VSAM, QSAM (sequential), PDS, and tape. Be able to use File Manager to edit and browse files, and use the data management utilities. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led, hands-on lab exercises are recommended to gain experience using File Manager on your system.

Skills Taught

- Understand the functions and utilities provided by File Manager
- Edit and browse data in various file types using File Manager's data handling capabilities
- Learn the different ways to use copybooks and templates to control record selection and formatting
- Use the online and batch utility functions for data set management and data manipulation
- Understand how you can add powerful custom functionality to the File Manager utilities with user-written REXX programs

Course Outline

- Introduction
- Using Edit and Browse
- File Manager Editing Techniques
- Using Templates
- Template usage in Edit
- File Manager Settings and Options
- Print Utility
- Copy Utility

- DSList - Catalog Services
- VTOC Utility
- Find/Change Utility
- Loadlib Utility
- Compare Data Utility
- Copybook View and Print Utility
- Enhancing File Manager Processing

Training Options

- On-site, hands-on workshop (recommended):   1 day
- On-site, lecture-only workshop: 5 hours
- Webcast lecture-only workshop: 5 hours

Prerequisites

To get the most from this workshop, students should:

- Be familiar with TSO and ISPF, and have experience using data editors
- Understand common z/OS data set types, such as QSAM, VSAM, and PDS
- Know how to modify JCL, submit a batch job, and view its output

IBM File Manager for DB2 Data Workshop

Learn to use File Manager to work with DB2 data and tables. Be able to use File Manager to edit and browse DB2 tables, and use the DB2 data management utilities. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led hands-on lab exercises may be done to gain experience using File Manager and DB2 on your system.

Skills Taught
- Understand the functions and utilities provided by File Manager and DB2
- Edit and browse DB2 tables
- Use "templates" to control row selection and formatting
- Use the online and batch utility functions for DB2 object management and data manipulation

Course Outline
- Introduction
- Edit and Browse
- Utilities:
    - Print
    - Copy
    - Object List
    - Managing Objects and Privileges
    - Import and Export
    - DB2 Utility Job generation
- SQL Execution and Prototyping
- File Manager / DB2 Options

Training Options
- On-site, hands-on workshop (recommended): $^1/_2$ day
- On-site, lecture-only workshop: 2.5 hours
- Webcast lecture-only workshop: 2.5 hours

Prerequisites
To get the most from this workshop, students should:
- Be familiar with TSO and ISPF
- Understand basic DB2 concepts
- Have experience using data editors
- Know how to modify JCL, submit a batch job, and view its output

IBM File Manager for IMS Data Workshop

Learn to use File Manager to work with IMS data and databases. Be able to use File Manager to edit and browse IMS databases, and use the IMS data management utilities. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led hands-on lab exercises may be done to gain experience using File Manager and IMS on your system.

Skills Taught

- Understand the functions and utilities provided by File Manager and IMS
- Edit and browse IMS databases
- Use templates and views to control segment selection and formatting
- Learn methods for selecting data using the Extract utility
- Use the File Manager for IMS utility functions

Course Outline

- Introduction to File Manager for IMS
- Edit and Browse
- Extract Utility
- Load Utility
- File Manager for IMS Options
- Print Utility
- DSEB Utility
- IMS Edit in Batch Utility

Training Options

- On-site, hands-on workshop (recommended): $^1/_2$ day
- On-site, lecture-only workshop: 2.5 hours
- Webcast lecture-only workshop: 2.5 hours

Prerequisites

To get the most from this workshop, students should:
- Be familiar with TSO and ISPF
- Understand basic IMS concepts
- Have experience using data editors
- Know how to modify JCL, submit a batch job, and view its output

IBM Fault Analyzer for z/OS Data Workshop

Learn to use Fault Analyzer to diagnose application abends. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led hands-on lab exercises may be done to gain experience using Fault Analyzer on your system.

Skills Taught

- Understand the functions provided by Fault Analyzer
- Quickly find information needed to diagnose abends
- Use Interactive Reanalysis to quickly navigate through application programs and data areas in abend data captured by Fault Analyzer
- Apply program source information to captured abend data to pinpoint an abending program statement and view program variables

Course Outline

- Introduction
- Fault Analyzer files and setup
- The Real-Time Fault Analysis Report
- Using the online interface
- Fault Re-analysis
- CICS, DB2, and IMS Support
- Using Fault Analyzer to perform root-cause problem analysis
- How to prepare programs for Fault Analyzer
- Using Fault Analyzer options
- Hints and tips

Training Options

- On-site, hands-on workshop (recommended): $^1/_2$ day
- On-site, lecture-only workshop: 2 hours
- Webcast lecture-only workshop: 2 hours

Prerequisites

To get the most from this workshop, students should:
- Be familiar with application development processes on a z/OS system
- Be able to write a program in COBOL, PL/I, C, or assembler
- Be able to compile a program, and read and understand a compiler listing
- Know how to modify JCL, submit a batch job, and view its output

IBM Debug Tool Workshop

Learn to use Debug Tool to monitor and debug application programs. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led hands-on lab exercises may be done to gain experience using Debug Tool on your system.

Skills Taught
- Understand the functions and utilities provided by Debug Tool
- Know how to start a debugging session using the 3270 interface, and optionally a remote debugging session
- Basic commands commonly used, and advanced commands that take advantage of Debug Tool's powerful features
- Understand how to compile or assemble a program to prepare for a debugging session

Course Outline
- Introduction to Debug Tool
- Using the Full-Screen Interface: The Basics
- Preparing a Program for Debug Tool
  - *LE Programs: COBOL, PL/I, C, and C++*
  - *OS/VS COBOL Programs*
  - *Assembler Programs*
- Starting Debug Tool
  - *Debugging Batch Applications*
  - *Debugging Batch Applications in TSO foreground*
  - *Debugging Batch / DB2 Applications*
  - *Debugging CICS Applications*
  - *Debugging CEEUOPT Invoked Applications*
  - *Debugging IMS Applications* *(see notes 1 and 2 under "Training Options" below)*
  - *Debugging TSO Applications*
  - *Debugging DB2 Stored Procedures*
  - *Running Debug Tool in batch (unattended) mode*
- The Full-Screen Interface: Beyond the Basics
- Remote debugging with WebSphere Developer for zSeries or WebSphere Developer Debugger for zSeries *(extended workshop only)*
- Debugging IMS Applications *(extended workshop only)*
- Debugging Assembler Applications *(extended workshop only)*
- Debugging OS/VS COBOL Applications *(extended workshop only)*
- Hints and Tips

Training Options

- On-site, hands-on workshop (recommended):   1 day   or   1 ½ days

  A one day hands-on workshop covers detailed topics in debugging programs compiled with supported versions of COBOL and PL/I in batch and in CICS environments. If any of the following topics are covered, the hands-on workshop must be scheduled for 1 ½ days:

  - *Remote debugging with WebSphere Developer for zSeries or WebSphere Developer Debugger for zSeries*
  - *Debugging IMS Applications*
  - *Debugging Assembler Applications*
  - *Debugging OS/VS COBOL Applications*

- On-site or webcast lecture-only workshop: 4 hours to 6 hours

  Due to the complex nature of interactive program debugging, we do not recommend Debug Tool lecture-only training for most users.

  A four hour lecture-only workshop covers detailed topics in debugging programs compiled with supported versions of COBOL and PLI in batch and in CICS environments. Each of the following topics adds approximately ½ hour to the total time of the lecture-only workshop:

  - *Remote debugging with WebSphere Developer for zSeries or WebSphere Developer Debugger for zSeries*
  - *Debugging IMS Applications*
  - *Debugging Assembler Applications*
  - *Debugging OS/VS COBOL Applications*

Prerequisites

To get the most from this workshop, students should:

- Be familiar with application development processes on a z/OS system
- Be able to write a program written in at least one of these languages: COBOL, PL/I, C, C++, or assembler
- Be able to compile a program and read a compiler listing
- Know how to modify JCL, submit a batch job, and view its output

Application Performance Analyzer Workshop

Learn to use Application Performance Analyzer to isolate performance bottlenecks in application programs, improving response time in online applications, and reducing batch runtimes. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led hands-on lab exercises may be done to gain experience using APA on your system.

Skills Taught

- Understand the functions and utilities provided by Application Performance Analyzer
- Isolate performance problems in applications
- Attribute I/O activity, CPU activity, and wait times to application program source statements
- Collect performance data in real time or on a schedule
- Use the real-time monitor to view the performance characteristics of a running application
- Analyze collected performance data after an application has completed

Course Outline

- Introduction
- A quick tour of Application Performance Analyzer
- Entering observation sessions
- Viewing analysis reports and analyzing application performance
- Printing analysis reports
- Working with program source
    - Compiling programs to use with Application Performance Analyzer

Training Options

- On-site, hands-on workshop (recommended): $^1/_2$ day
- On-site, lecture-only workshop: 2 hours
- Webcast lecture-only workshop: 2 hours

Prerequisites

To get the most from this workshop, students should:

- Understand basic application resource usage concepts: CPU time, I/O time, and wait time
- Be able to compile a program and read a compiler listing
- Know how to modify JCL, submit a batch job, and view its output

Workload Simulator Workshop

Learn to use Workload Simulator to record, develop, and play back test scripts that simulate users on your network. Understand how to use these scripts to perform load, stress, performance, and regression testing. An experienced IBM consultant will provide in-depth lecture and lead discussion. Instructor-led hands-on lab exercises may be done on your system.

Skills Taught
- Create a Workload Simulator project to contain your test scripts
- Capture live sessions to automatically create test scripts
- Modify the data, sequence, and or logic in your scripts
- Supply data to your scripts from a file
- Execute your script from your TSO session or from a batch job
- Perform regression testing by comparing the results of multiple test executions
- Perform load testing by simulating a large number of users

Course Outline
- Introduction
- First-time set up
- Creating a project
- Running a simulation
    - Use IDC (Interactive Data Capture) to create a Test Case
    - Create a schedule and execute a Simulation
    - View reports
- Using user tables for input
- Running WSim as a Batch Job
- Modularizing test cases
    - Use IDC to generate modular Test Cases
    - Create a test group
- Running a regression test
- Using the display monitor
- Running a load test
- Scripting language
    - Coding STL programs: the basics
- WSim operator commands

Training Options
- On-site, hands-on workshop (recommended): $^{1}/_{2}$ day
- On-site, lecture-only workshop: 3 hours
- Webcast lecture-only workshop: 3 hours

Prerequisites
To get the most from this workshop, students should:
- Be familiar with TSO and ISPF, and understand basic 3270 concepts
- Know how to allocate and edit data sets
- Be able to submit a batch job, and view its output