

Java Troubleshooting with ISA 5 using Health Center and Memory Analyzer

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Lab: Java Troubleshooting with ISA 5 using Health Center and Memory Analyzer

Lab Agenda:

- Part 1: Lab Set Up
- Part 2: Explore IBM Support Assistant 5 Beta
- Part 3: Setup Health Center to Monitor a running WebSphere JVM
- Part 4: Use Health Center to Investigate Application Errors
- Part 5: WebSphere Application Server Health Management
- Part 6: Trigger a Memory Leak to activate the Health Policy
- Part 7: Using ISA and the Memory Analyzer to Analyze a Heapdump
- Part 8: **(Optional)** Using the IBM Extensions to Memory Analyzer for further Memory Analysis
- Part 9: **(Optional)** Using the WebSphere Application Server Configuration Visualizer

What you should be able to do:

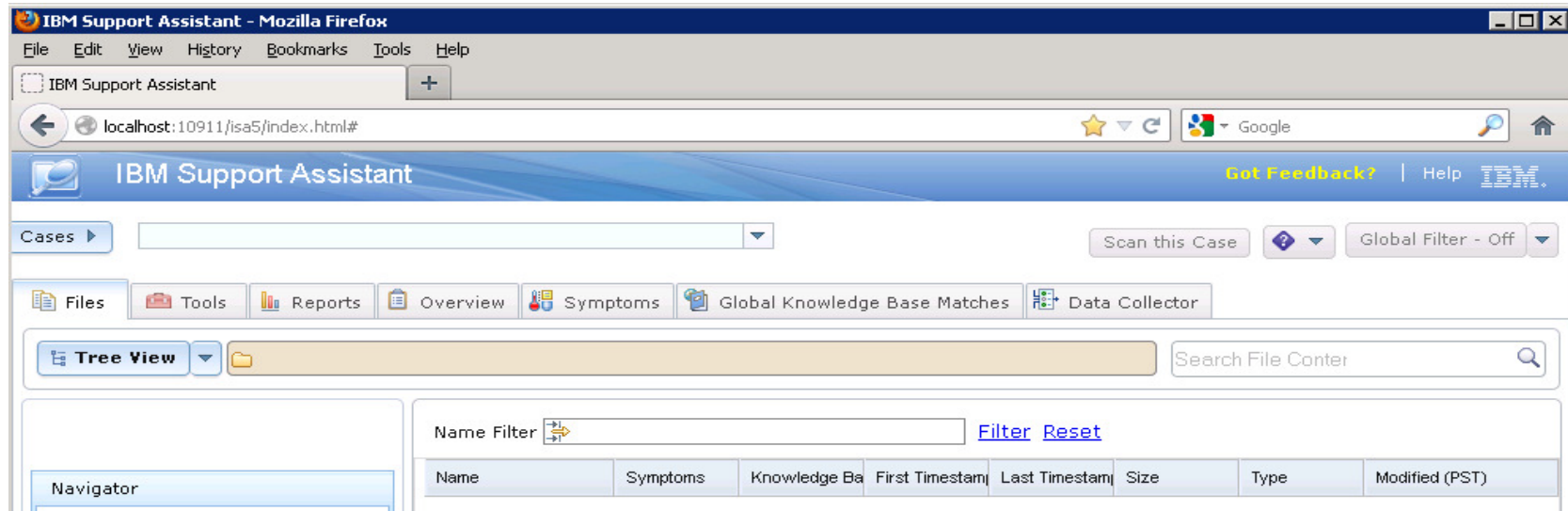
At the end of this lab you should be able to:

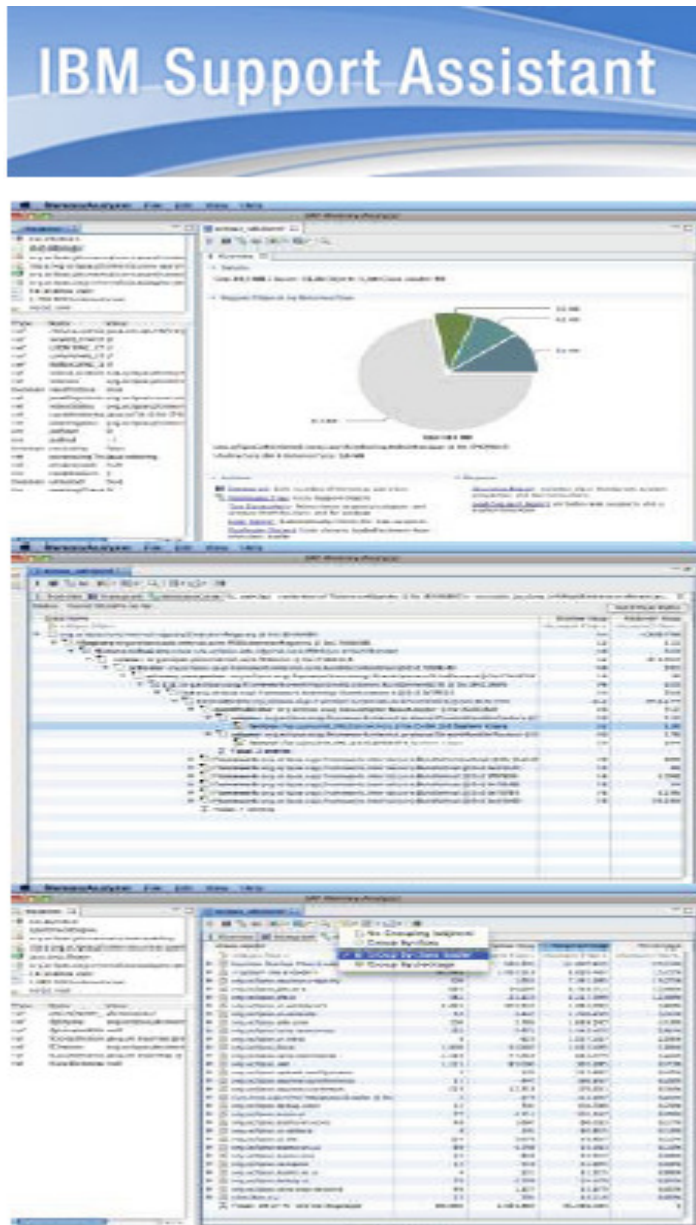
- Launch and configure Health Center to monitor a running WebSphere JVM
- Identify bugs in running code such as unnecessary calls to System.gc(), large object allocations and memory leaks
- Define a WebSphere Application Server health policy to automatically restart a server if a memory leak is detected
- Understand the basic techniques for debugging Java™ memory issues with Memory Analyzer, using desktop, web and report editions
- Analyze a heap dump to determine those objects consuming the most heap space
- Use IBM extensions for Memory Analyzer to perform product specific memory analysis of a system dump

IBM Support Assistant (ISA)

The IBM® Support Assistant (ISA) is a free application that provides features for problem determination, and a platform for obtaining diagnostic tools.

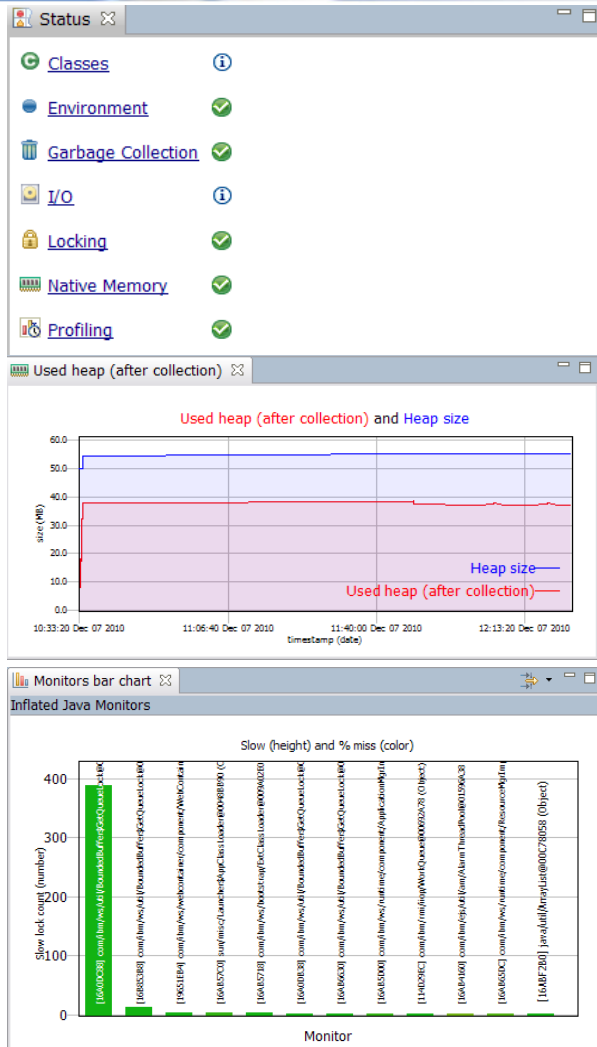
- Multi-user automated performance testing tool for Web-based applications
- ISA v5.0, Brings these capabilities into a server environment. Therefore resources, files, information, and server-level tools can be shared.
- ISA v5.0 can be installed from an EAR file into an existing WebSphere Application Server, or using a simple “all-in-one” unzip install which contains everything required, including a lightweight application server and Java runtime.





Memory Analyzer

- Based on Eclipse project MAT, with some extensions to load IBM dumps
- Overview of the heap dump including size and total number of objects
- Identifies possible memory leaks
- Provides links to continued analysis
 - Path to GC Roots, the reference chain that prevents an object being garbage collected.
- Dominator tree grouped by class loader:
 - Can scope the analysis to a single application in WebSphere environment
- 64-bit MAT available



Health Center

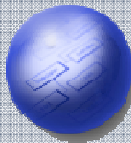
- Provides a view inside a running ‘in-flight’ Java application
 - Performance analysis
 - JVM configuration recommendations
- Small agent runs on the target JVM
 - Minimal overhead (circa 3%)
 - Supports all IBM Java platforms, requires Java 5 and above
- Use during the development phase
 - Performance problems
 - Functional issues
- Use in production
 - Configuration problems
 - Stability issues

Health Management

Sense and respond to problems before end users suffer an outage

- Automatically detect and handle application health problems
 - Without requiring administrator time, expertise, or intervention
- Intelligently handle health issues in a way that will maintain continuous availability
- Each health policy consists of a condition, one or more actions, and a target set of processes
- Includes health policies for common application problems
- Customizable health conditions and health actions

**Comprehensive
Health Policies**



**Customizable
Health
Conditions**



**Customizable
Health
Actions**



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Thank You!!

AVP Lab Workstation Passwords

Main Workstation Password:

c4ebwin7

VMware Image Password:

Impact2013AVP

AVP-3224/3225

AVP Sessions in this Room: Venetian - Zeno 4601

- **AVP-3217: How to get the most value from your WebSphere software with IBM Software Subscription and Support**
 - Session Type: Hands on lab
 - Date/Time: Tuesday, April 30th /2:30 PM – 3:30 PM
- **AVP-3216: Key to Software Currency: Introducing WebSphere Migration Assist Program**
 - Session Type: Lecture
 - Date/Time: Tuesday , April 30th / 04:00 PM - 05:00 PM
- **AVP-3225: Java Troubleshooting with ISA 5 Using Thread and Monitor Dump Analyzer**
 - Session Type: Hands on lab
 - Date/Time: Wednesday, May 1st /10:15 AM – 11:15 AM
- **AVP-3227: WebSphere MQ V7.1 and V7.5: Migration Recommendations and New Features**
 - Session Type: Workshop
 - Date/Time: Wednesday, May 1st /1:00 – 2:00 PM.
- **AVP-3227: WebSphere MQ: Monitoring and Troubleshooting Techniques**
 - Session Type: Workshop
 - Date/Time: Wednesday, May 1st /2:15 – 3:15 PM.
- **AVP-3226: WebSphere V8.5: Migration Recommendations and New Features**
 - Session Type: Workshop
 - Date/Time: Wednesday, May 1st /3:45 - 4:45 PM

Other related sessions

- TAW-1873: Meet the Experts: WAS - Open Questions and Best Practices
 - Mon 05:15 PM - 06:15 PM, San Polo 3401 (Zone D)
 - Wed 02:15 PM - 03:15 PM, San Polo 3401 (Zone D)
- TAW-1683: WAS v6.1 End-of-Service: The Case for Migrating by Sept 2013!
 - Tue 10:15 AM - 11:15 AM, Palazzo I
 - Tue 04:00 PM - 05:00 PM, Palazzo I
- TAW-1871: Meet the Experts: Moving from WAS v6.1 to WAS v8.x
 - Tue 02:30 PM - 03:30 PM, San Polo 3401 (Zone C)
 - Wed 10:15 AM - 11:15 AM, San Polo 3401 (Zone B)
- TAW-1622: WAS Migration - Planning and Best Practices
 - Tue 05:15 PM - 06:15 PM, Room: Palazzo G
 - Thu 10:15 AM - 11:15 AM, Room: Palazzo I
- TAW-1626: Hands-On Lab: WAS Migration Tools
 - Wed 03:45 PM - 06:00 PM, Murano 3301B
- TAW-1624: IBM WebSphere Application Server Migration Toolkit
 - Thu 03:45 PM - 04:45 PM, Room: Palazzo H

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