

Java Diagnostic Tools Demo the zOS Systems Programmer and Application Developer

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Tools Topics

- Out with the Old
 - svcdump.jar
 - limitations
- In with the New
 - jdmpview
 - Introduction
 - Interactive mode
 - Batch
 - IDDE
 - Introduction
 - Demonstrations

svcdump.jar

- svcdump.jar has been widely used by the Service and User groups for extracting java diagnostic data from zOS tdumps and svcdumps, primarily:
 - Java stacks
 - Portable heap dumps (.phd)
- Though popular, it has never been a supported tool
 - Last known update was 2010
- Functional shortcomings exist for the Java 64bit and compressed reference environments:
 - Example: Incomplete javastacks

svcdump.jar

- The jar file is still available, and does work reasonably well for 31bit Java5 dumps, but should be considered deprecated.
- If svcdump.jar is no longer the tool of choice, what should be used?

The answer is: `jdmpview`

- `jdmpview` is included in the IBM JVM
- It is **fully supported**
- It is included in Java5, Java6, Java601, and Java7.
- Recent versions include a build and version independent `jdmpview`
- **New Features** for 601 and 7
 - Single step invocation (no `jextract` required)
 - Command line invocation
 - Called “batch mode” in our documentation
 - Command file option
 - Pass multiple options in a single file

JzOS classname for jdmpview

- What is the classname for a JzOS invocation of jdmpview?
 - `com.ibm.jvm.dtfjview.DTFJView`
 - `JAVACLS='com.ibm.jvm.dtfjview.DTFJView'`

- Here's a sample job:

Sample JzOS job for jdmpview

```
//KIRWINZ JOB ,KIRWIN,MSGLEVEL=(1,1),MSGCLASS=H,TIME=(,41),REGION=(0M)
//JAVA EXEC PROC=JVMPRC61,
// LOGLVL='+T',
// JAVACLS='com.ibm.jvm.dtfjview.DTFJView',
// ARGS='-core KIRWIN.JVM.TDUMP.KIRWIN.D120613.T115947'
//STDENV DD *
export JAVA_HOME=/usr/lpp/java/J6.0.1
export PATH=/bin:${JAVA_HOME}/bin:
LIBPATH=/lib:/usr/lib:${JAVA_HOME}/bin
LIBPATH="${LIBPATH}:${JAVA_HOME}/bin/classic
export LIBPATH="${LIBPATH}":
export CLASSPATH=/u/kirwin:/usr/lpp/java/J6.0.1/bin
# Configure JVM options
IJO="-Xmx900m "
export IBM_JAVA_OPTIONS="${IJO} "
//MAINARGS DD *
-outfile 'temp.out'
info thread ALL
//
```

Extracting java stacks and heapdumps with jdumpview

- To extract javastacks :
 - Interactive command: `info thread *`
 - Batch mode: `info thread all`
- To extract a heapdump:
 - Interactive command: `heapdump`
 - Batch mode: `heapdump`
- Invocation options:
 - Interactive
 - Command line
 - BPXBATC
 - JzOS Batch Launcher

Sample jdumpview Output

```
Source : file:///u/kirwin/KIRWIN.JDMP1.TSTDMP
  0 : ASID: 0x1 : No JRE : No JRE
  1 : ASID: 0x3 : No JRE : No JRE
  2 : ASID: 0x4 : No JRE : No JRE
  3 : ASID: 0x6 : No JRE : No JRE
  4 : ASID: 0x7 : No JRE : No JRE
 *5 : ASID: 0xd0 EDB: 0x4800105570 : JRE 1.6.0 z/OS s390x-64 build 201202
14_102688 (pmz6460_26sr1fp1ifix-20120618_01(SR1 FP1))
  6 : ASID: 0x1a0 EDB: 0x4800105570 : JRE 1.6.0 z/OS s390x-64 build 20120
214_102688 (pmz6460_26sr1fp1ifix-20120618_01(SR1 FP1))
  7 : ASID: 0xffff : No JRE : No JRE
```

>

What does this tell us
about this dump?

IDDE: an Introduction

- Integrated Diagnostic Data Explorer
 - Tech Preview available for ISA 4.1 as of July 31, 2012
- Eclipse productivity layer on top of jdmpview
- Features
 - Content Assist
 - Auto-complete
 - Outline view
 - Syntax highlighting

IDDE: An Introduction...

- Interactive tool driven by the user
- Suspend/Resume capability
 - NO LOSS of previous work
- Edit capability allows a mix of text and live session data
 - User can include notes inline with the data extracted
- Portability
 - Projects can be passed amongst users

IDDE: An Introduction...

- jdmpview command plug-ins included
- Data limits provide user control over data displays
 - If an excessive number of objects exist, user is given the option to interrupt the command or continue
- Custom plug-in capability is available
 - User written plug-ins may be imported and executed
- Supported under ISA4 and Eclipse

Helpful Links

- ISA workbench
 - <http://www-01.ibm.com/software/support/isa>
- IDDE developerWorks page
 - <https://www.ibm.com/developerworks/mydeveloperworks/groups/service/html/communityview?communityUuid=5efb4378-ebba-47da-8c0f-8841d669d0cc>
- jdmpview developerWorks page
 - https://www.ibm.com/developerworks/mydeveloperworks/wikis/home/wiki/W5c02253238d2_441a_a252_da8d79ae512d/page/Installation%20Guide?lang=en