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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'jdb.1' command

\$ man jdb.1

jdb(1) Basic Tools jdb(1)

NAME

jdb - Finds and fixes bugs in Java platform programs.

SYNOPSIS

jdb [options] [classname] [arguments]

options

Command-line options. See Options.

classname

Name of the main class to debug.

arguments

Arguments passed to the main() method of the class.

DESCRIPTION

The Java Debugger (JDB) is a simple command-line debugger for Java classes. The jdb command and its options call the JDB. The jdb command demonstrates the Java Platform Debugger Architecture (JDBA) and provides inspection and debugging of a local or remote Java Virtual Machine (JVM). See Java Platform Debugger Architecture (JDBA) at <http://docs.oracle.com/javase/8/docs/technotes/guides/jpda/index.html>

START A JDB SESSION

There are many ways to start a JDB session. The most frequently used way is to have JDB launch a new JVM with the main class of the application to be debugged. Do this by substituting the jdb command for the java command in the command line. For example, if your

application's main class is MyClass, then use the following command to debug it under JDB:

```
jdb MyClass
```

When started this way, the jdb command calls a second JVM with the specified parameters, loads the specified class, and stops the JVM before executing that class's first instruction.

Another way to use the jdb command is by attaching it to a JVM that is already running. Syntax for starting a JVM to which the jdb command attaches when the JVM is running is as follows. This loads in-process debugging libraries and specifies the kind of connection to be made.

```
java -agentlib:jdwp=transport=dt_socket,server=y,suspend=n MyClass
```

You can then attach the jdb command to the JVM with the following command:

```
jdb -attach 8000
```

The MyClass argument is not specified in the jdb command line in this case because the jdb command is connecting to an existing JVM instead of launching a new JVM.

There are many other ways to connect the debugger to a JVM, and all of them are supported by the jdb command. The Java Platform Debugger Architecture has additional documentation on these connection options.

BASIC JDB COMMANDS

The following is a list of the basic jdb commands. The JDB supports other commands that you can list with the -help option.

help or ?

The help or ? commands display the list of recognized commands with a brief description.

run After you start JDB and set breakpoints, you can use the run command to execute the debugged application. The run command is available only when the jdb command starts the debugged application as opposed to attaching to an existing JVM.

cont Continues execution of the debugged application after a breakpoint, exception, or step.

print Displays Java objects and primitive values. For variables or

fields of primitive types, the actual value is printed. For objects, a short description is printed. See the dump command to find out how to get more information about an object.

Note: To display local variables, the containing class must have been compiled with the javac -g option.

The print command supports many simple Java expressions including those with method invocations, for example:

```
print MyClass.myStaticField
```

```
print myObj.myInstanceField
```

```
print i + j + k (i, j, k are primitives and either fields or local variables)
```

```
print myObj.myMethod() (if myMethod returns a non-null)
```

```
print new java.lang.String("Hello").length()
```

dump For primitive values, the dump command is identical to the print command. For objects, the dump command prints the current value of each field defined in the object. Static and instance fields are included. The dump command supports the same set of expressions as the print command.

threads

List the threads that are currently running. For each thread, its name and current status are printed and an index that can be used in other commands. In this example, the thread index is 4, the thread is an instance of java.lang.Thread, the thread name is main, and it is currently running.

```
4. (java.lang.Thread)0x1 main      running
```

thread Select a thread to be the current thread. Many jdb commands are based on the setting of the current thread. The thread is specified with the thread index described in the threads command.

where The where command with no arguments dumps the stack of the current thread. The whereall command dumps the stack of all threads in the current thread group. The wherethreadindex command dumps the stack of the specified thread.

If the current thread is suspended either through an event such

as a breakpoint or through the suspend command, then local variables and fields can be displayed with the print and dump commands. The up and down commands select which stack frame is the current stack frame.

BREAKPOINTS

Breakpoints can be set in JDB at line numbers or at the first instruction of a method, for example:

? The command stop at MyClass:22 sets a breakpoint at the first instruction for line 22 of the source file containing MyClass.

? The command stop in java.lang.String.length sets a breakpoint at the beginning of the method java.lang.String.length.

? The command stop in MyClass.<clinit> uses <clinit> to identify the static initialization code for MyClass.

When a method is overloaded, you must also specify its argument types so that the proper method can be selected for a breakpoint. For example, MyClass.myMethod(int,java.lang.String) or MyClass.myMethod().

The clear command removes breakpoints using the following syntax: clear MyClass:45. Using the clear or stop command with no argument displays a list of all breakpoints currently set. The cont command continues execution.

STEPPING

The step command advances execution to the next line whether it is in the current stack frame or a called method. The next command advances execution to the next line in the current stack frame.

EXCEPTIONS

When an exception occurs for which there is not a catch statement anywhere in the throwing thread's call stack, the JVM typically prints an exception trace and exits. When running under JDB, however, control returns to JDB at the offending throw. You can then use the jdb command to diagnose the cause of the exception.

Use the catch command to cause the debugged application to stop at other thrown exceptions, for example: catch java.io.FileNotFoundException or catchmypackage.BigTroubleException.

Any exception that is an instance of the specified class or subclass

stops the application at the point where it is thrown.

The ignore command negates the effect of an earlier catch command. The ignore command does not cause the debugged JVM to ignore specific exceptions, but only to ignore the debugger.

OPTIONS

When you use the jdb command instead of the java command on the command line, the jdb command accepts many of the same options as the java command, including -D, -classpath, and -X options. The following list contains additional options that are accepted by the jdb command.

Other options are supported to provide alternate mechanisms for connecting the debugger to the JVM it is to debug. For additional documentation about these connection alternatives, see Java Platform

Debugger Architecture (JPDA) at

<http://docs.oracle.com/javase/8/docs/technotes/guides/jpda/index.html>

-help

Displays a help message.

-sourcepath dir1:dir2: . . .

Uses the specified path to search for source files in the specified path. If this option is not specified, then use the default path of dot (.)

-attach address

Attaches the debugger to a running JVM with the default connection mechanism.

-listen address

Waits for a running JVM to connect to the specified address with a standard connector.

-launch

Starts the debugged application immediately upon startup of JDB.

The -launch option removes the need for the run command. The debugged application is launched and then stopped just before the initial application class is loaded. At that point, you can set any necessary breakpoints and use the cont command to

continue execution.

-listconnectors

List the connectors available in this JVM.

-connect connector-name:name1=value1

Connects to the target JVM with the named connector and listed argument values.

-dbgtrace [flags]

Prints information for debugging the jdb command.

-tclient

Runs the application in the Java HotSpot VM client.

-tserver

Runs the application in the Java HotSpot VM server.

-Joption

Passes option to the JVM, where option is one of the options described on the reference page for the Java application launcher. For example, -J-Xms48m sets the startup memory to 48 MB. See java(1).

OPTIONS FORWARDED TO THE DEBUGGER PROCESS

-v -verbose[:class|gc|jni]

Turns on verbose mode.

-Dname=value

Sets a system property.

-classpath dir

Lists directories separated by colons in which to look for classes.

-Xoption

Nonstandard target JVM option.

SEE ALSO

? javac(1)

? java(1)

? javap(1)