Remote z/OS Debugging

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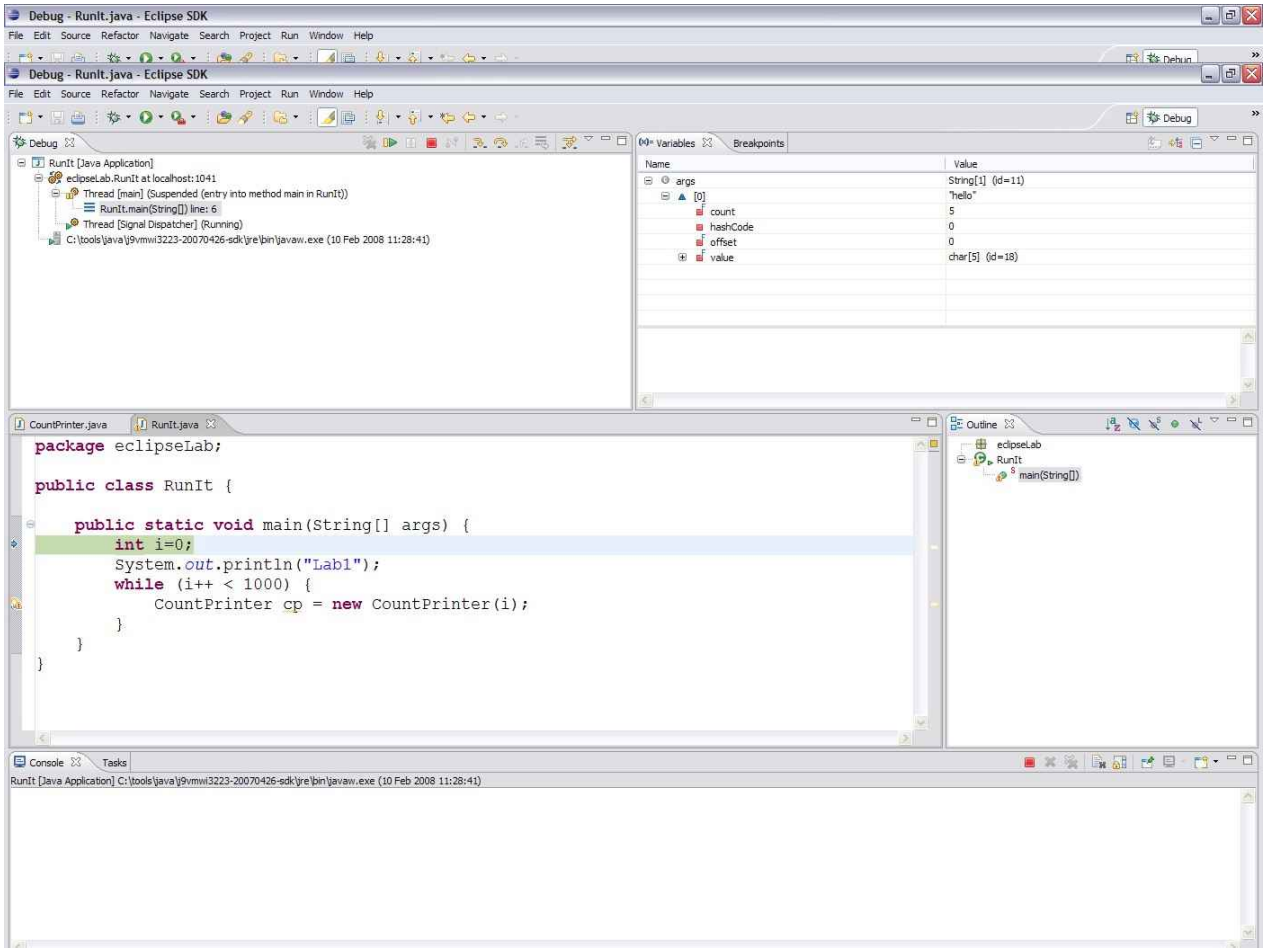
Agenda

- The Debug Perspective
  - The Debug Perspective
  - Exercise 1
  - Remote Debugging
  - Exercise 2

Debug Perspective

- The debug perspective gives you access to functionality which enables the user to run code interactively by:
  - 1. Stepping through the execution line by line
  - 2. Setting break points at places in the code where the execution will suspend
  - 3. Examining program attributes, such as variables, locks, memory, registers, … at any given (break) point
  - 4. Modifying variables during program execution
  - 5. Modifying code during program execution
- This enables the user to:
  - 1. Find code errors
  - 2. Unit test

Debug Perspective



Exercise 1

- Run RunIt.java from Monday's Eclipse Lab in debug mode
- Use the debug entities and functions:
  - breakpoints
  - step though, step into, step out, continue to next break point
- Display runtime entities
  - variables
  - thread stacks
- Advanced debugging techniques
  - Modify variables in flight
  - Change code in flight

Agenda

- The Debug Perspective
  - Debug functions and hot code replacement
  - The debug perspective layout
  - Exercise 1
  - Remote Debugging
  - Exercise 2

Remote Debugging

- In this exercise an application running on a z/OS box will be debugged from Eclipse running on a windows box.
- The application is the RunIt application
- The exercise consists of 2 parts:
  - starting the application on a remote machine (z/OS)
  - debugging the application from Eclipse

The Application

```
package eclipseLab;

public class RunIt {

  public static void
   main(String[] args) {
    int i=0;
    System.out.println("Lab1");
    while (i++ < 1000) {
      CountPrinter cp = new
   CountPrinter(i);
    }
  }
}
```

```
package eclipseLab;

public class CountPrinter {
  public CountPrinter(int num){
    System.out.println("Count = "
   + num);
  }
}
```

On The Remote Machine

- The files and directory structure on z/OS

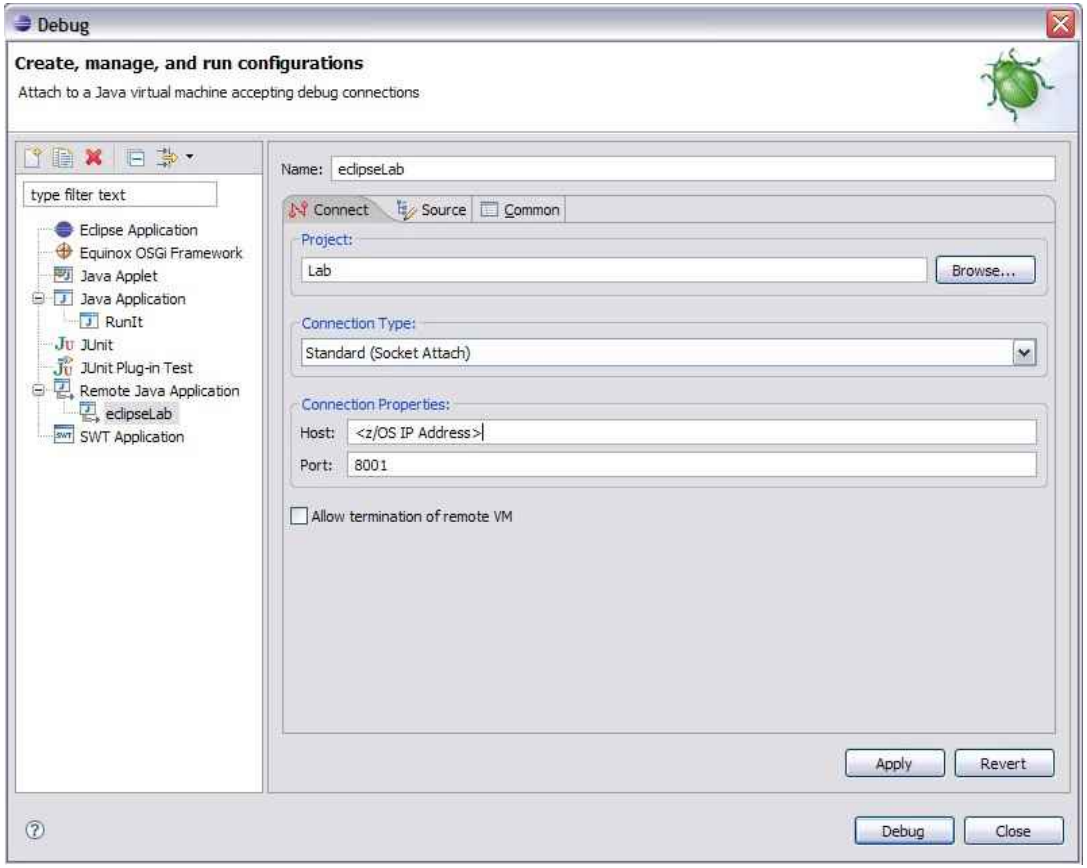
```
-rw-r-----   1 SHARA01  SHARUSER     128 Feb 11 04:33 CountPrinter.java
-rw-r-----   1 SHARA01  SHARUSER     201 Feb 11 04:33 RunIt.java
drwxr-xr-x   3 SHARA01  SHARUSER    8192 Feb 11 04:39 ..
-rw-r--r--   1 SHARA01  SHARUSER     680 Feb 11 04:39 RunIt.class
-rw-r--r--   1 SHARA01  SHARUSER     674 Feb 11 04:39 CountPrinter.class
drwxr-xr-x   2 SHARA01  SHARUSER    8192 Feb 11 04:39 .
MVS1:SHARA01:/sharelab/shara01/eclipselab/eclipseLab: > cd ..
MVS1:SHARA01:/sharelab/shara01/eclipselab: > ls -lrta
total 56
drwxr-xr-x   7 SHARA01  SHARUSER    8192 Feb 11 04:32 ..
-rwxr-xr-x   1 SHARA01  SHARUSER     204 Feb 11 04:39 runMeRemote
drwxr-xr-x   3 SHARA01  SHARUSER    8192 Feb 11 04:39 .
drwxr-xr-x   2 SHARA01  SHARUSER    8192 Feb 11 04:39 eclipseLab
MVS1:SHARA01:/sharelab/shara01/eclipselab: >
```

- run runMeRemote which starts RemoteRunIt suspended waiting on debug instructions on port 8001

```
MVS1:SHARA01:/sharelab/shara01/eclipselab: > cat runMeRemote
/usr/lpp/java15/J5.0/bin/javac -g eclipseLab/RunIt.java
/usr/lpp/java15/J5.0/bin/java -Xdebug -Xnoagent -Djava.compiler=NONE -Xrunjdwp:t
ransport=dt_socket,address=8001,suspend=y,server=y eclipseLab/RunIt
MVS1:SHARA01:/sharelab/shara01/eclipselab: > runMeRemote
Listening for transport dt_socket at address: 8001
```

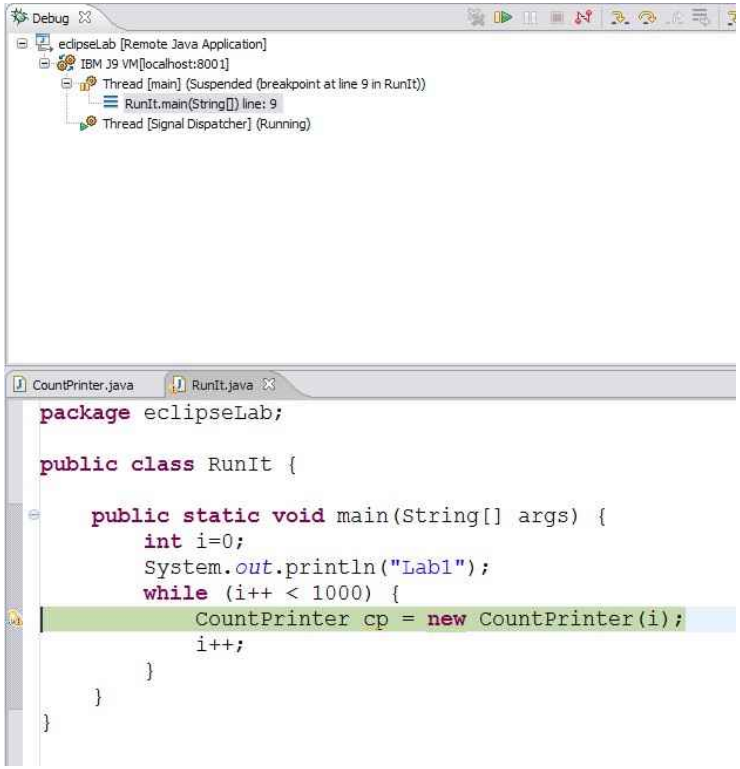
In Eclipse

- Select Run > Debug, enter the following settings and select Debug

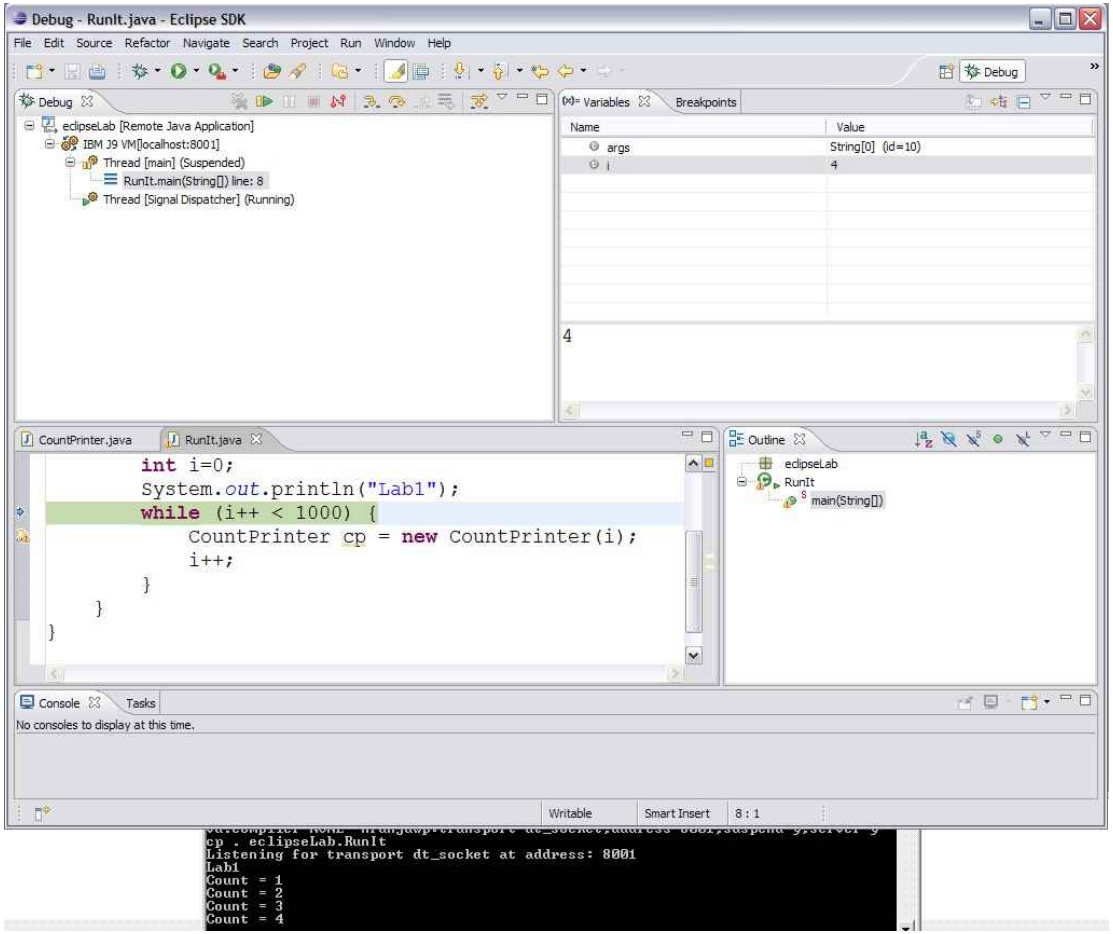


In Eclipse

- A breakpoint was set at the start of the main method and execution is suspended here.



An In Flight Snapshot



Accessing the Remote z/OS Machine

Host name: mvs1.centers.ihost.com

Usernames: SHARA02 – SHARA30

p/w: firstpw

Putty config: mvs1_2994

Suggest you create a session on mvs1 using putty which is available from your desktop