Deploying a Java Mainframe Application

Writing a Java application on your PC and deploying it to the Mainframe involves a number of steps.

Step 1) Writing the Java code on your PC

You will build a normal Java project in RDz, and write the classes you need for this application. You will need to pay attention to any external jar files required to compile and run your Java code, as these jar files will need to be on your PC, and in the Java Build Path (classpath) for the RDz project. These jar files will also need to be copied to the Mainframe to run the application there.

The following is the example Java code we will write on the PC and deploy to the Mainframe. This code is on the Instructor web site, under the name **MainframePlay.java** in the Code Examples section of the site.

```
package org.example.training;

import java.io.File;
import java.io.FileNotFoundException;
import java.io.PrintStream;
import java.util.Properties;

public class MainframePlay
{
	public static void main(String[] args)
	{
		try
		{
			File output = new File("Props.txt");
			Properties props = System.getProperties();
			props.list(new PrintStream(output));
		}
		catch (FileNotFoundException e)
		{
			e.printStackTrace();
		}
	}
}
```

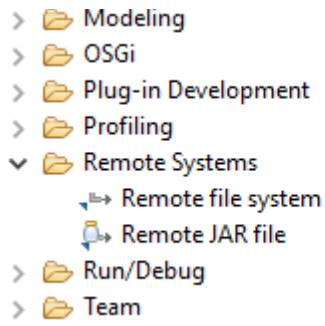
Put this code into an **RDz Java project**, making sure you do not have any compile errors.

Step 2) Exporting the Project to the Mainframe

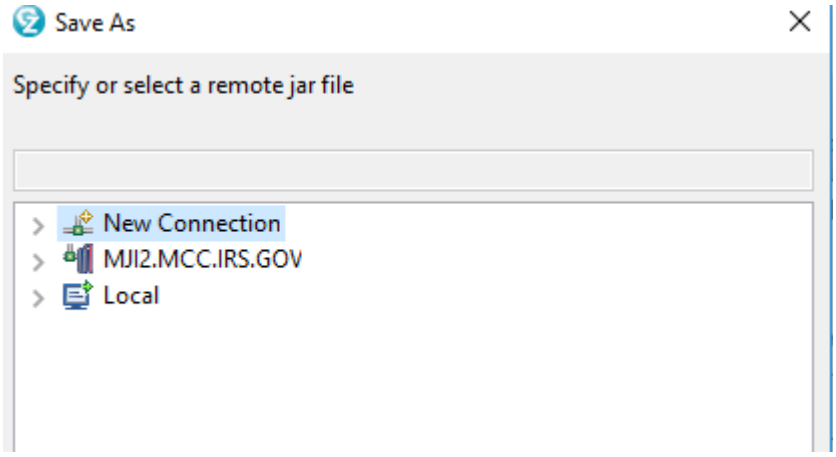
Once the Java code is written and compiled on your PC, it is time to export it to the Mainframe. Please note you **must** have a Mainframe connection from RDz to the Mainframe in the Remote Systems view of the z/OS Projects perspective.

Exporting Steps:

2.1) Right click the **Project** using the RDz Package Explorer. Select **Export**.
2.2) From the Export menu expand the **Remote Systems option**, and select **Remote Jar file**

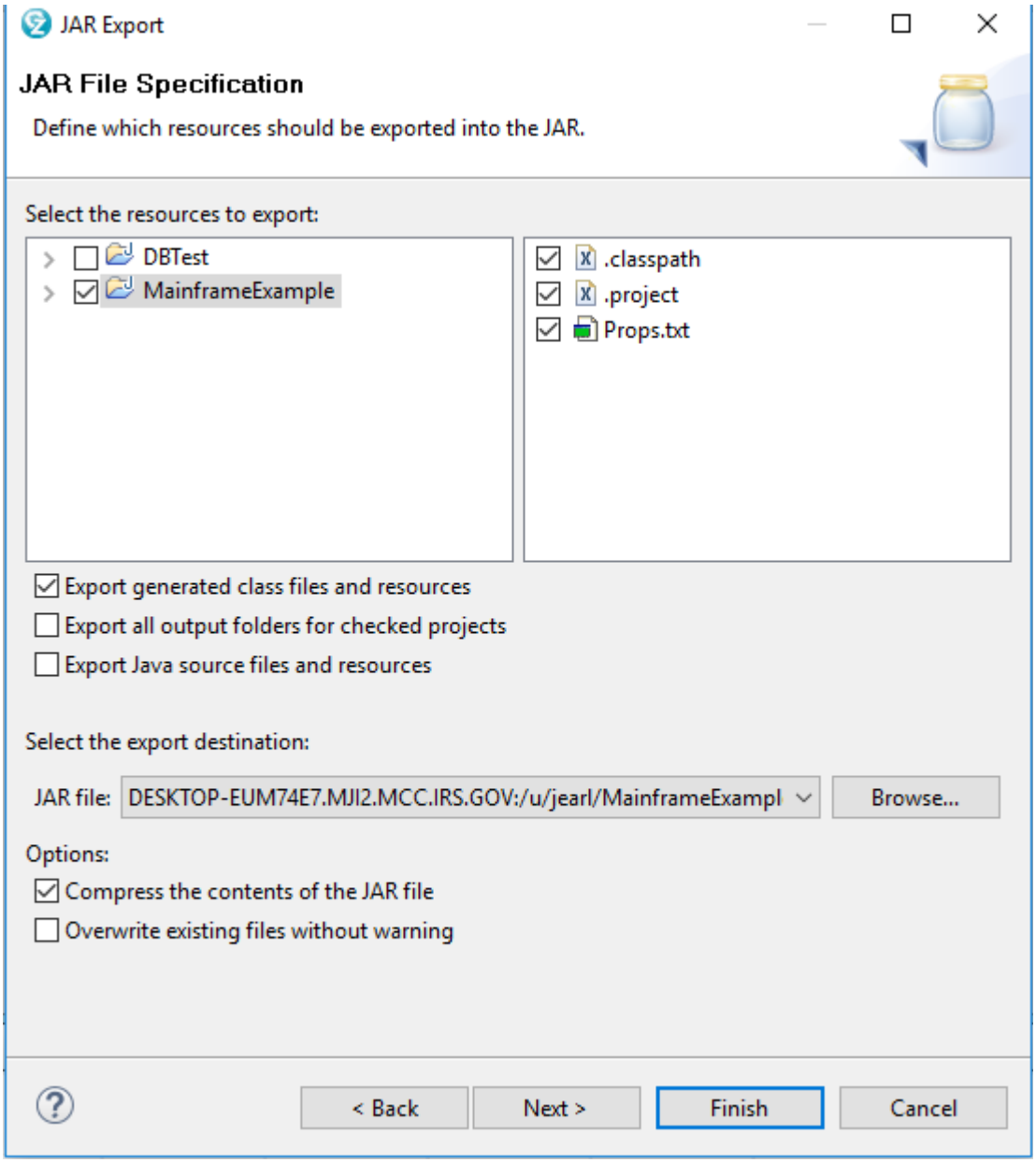


2.3) Make sure your **RDz Project** is selected.
2.4) Click the **Browse** button to bring up the save as option with a list of the possible destinations.

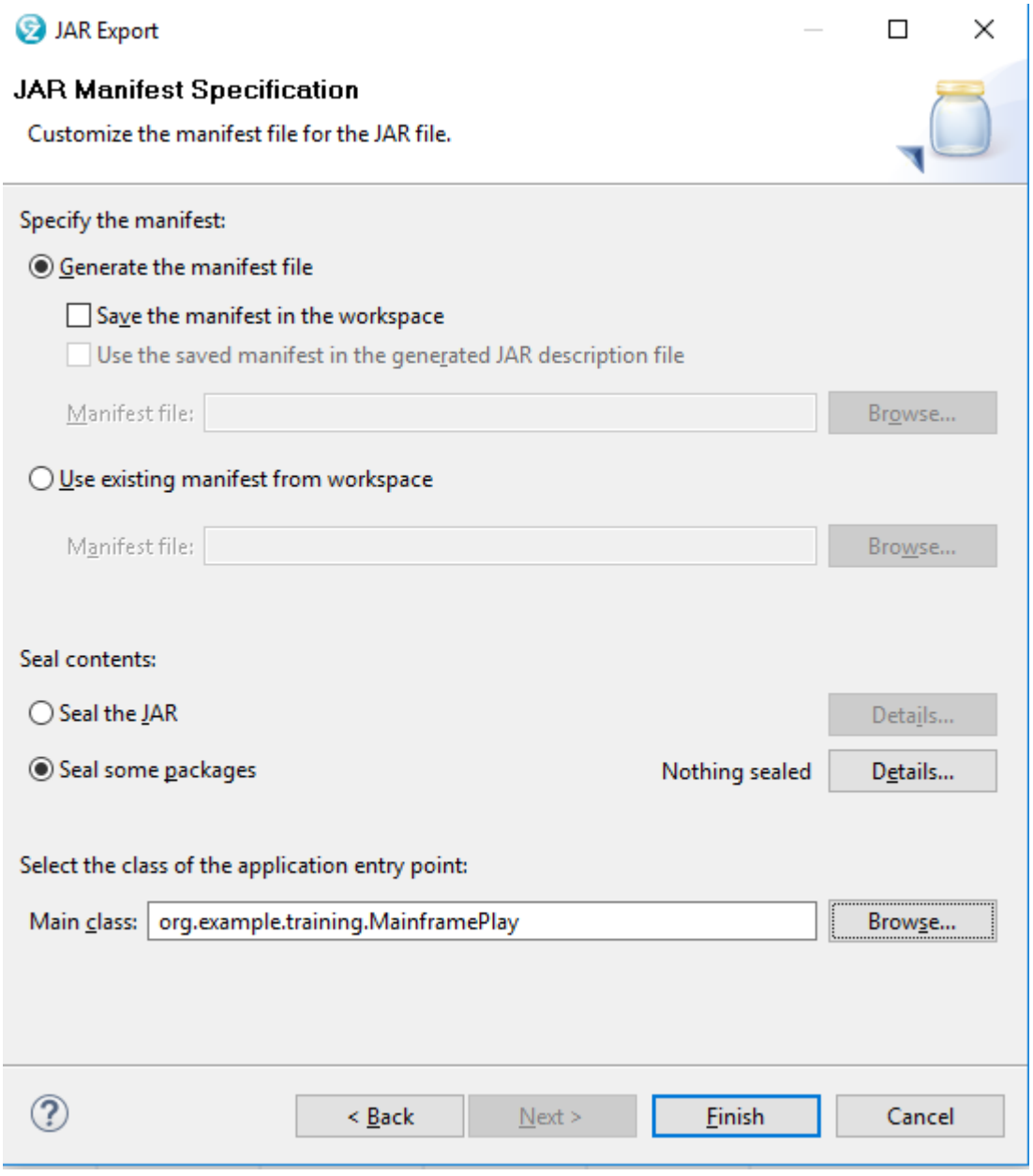


2.5) Expand the connection to the **MJI2.MCC.IRS.GOV** connection, you may be asked to enter your password again.

2.6) You will see the file system of the **USS** on the **Mainframe**. Please note you will not see a short-cut to your Home Directory, you will need to navigate to that location.
2.7) Expand the / (This is the root of the USS file system), then expand the **u** folder. You will see all the Users with home directories on Mainframe. Find yours, select it. If yours is not listed, leave RDz open, and go to TSO, and re-execute the **TSO OVMS** command to force your home directory to be available. Once you have done that, go back to RDz, and right click the **/u** folder and select **Refresh**, you will see your TSO userid listed.
2.8) Enter the following name into the **Archive name** field:
MainframeExample.jar
2.9) Click OK.

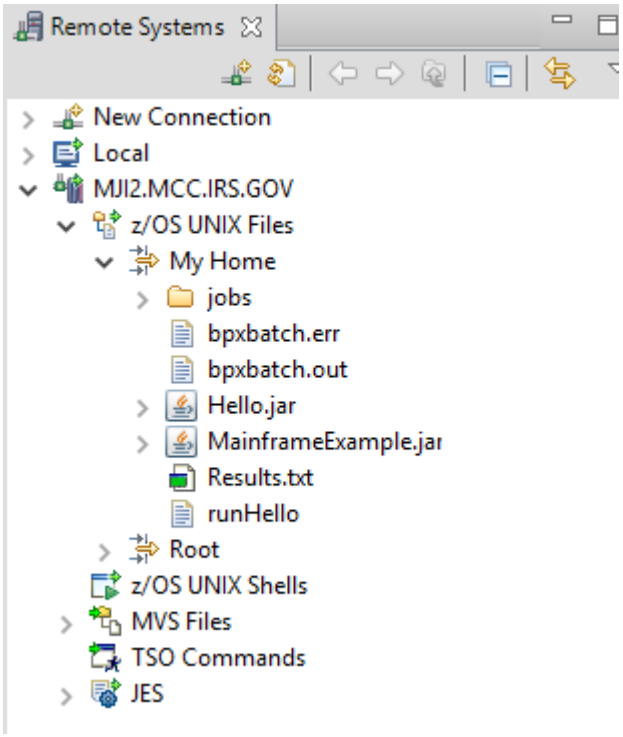


2.10) Click **Next** twice. This step is very important. You need to tell USS what code in the entry point to your application. On the resulting screen you will fill in the **Main class** option, by **Browse** button and entering **MainframePlay.** You may also select it from the list on the Browse screen. This is the class name you saw in step 1 of these instructions.



2.11) Click **Finish**.

2.12) Open the **Remote Systems** view of the **z/OS Projects** perspective, you will see the newly export jar file.



Step 3) Running the Java application on the Mainframe

You have three options to run the Java application on the Mainframe.

1. Run it through RDz, this is useful for Debugging the application.
2. Run it with a Unix Shell script from the USS partition on the Mainframe, This option is not used very often.
3. Run it via JCL from the TSO connection to the Mainframe, this is the option used production applications.

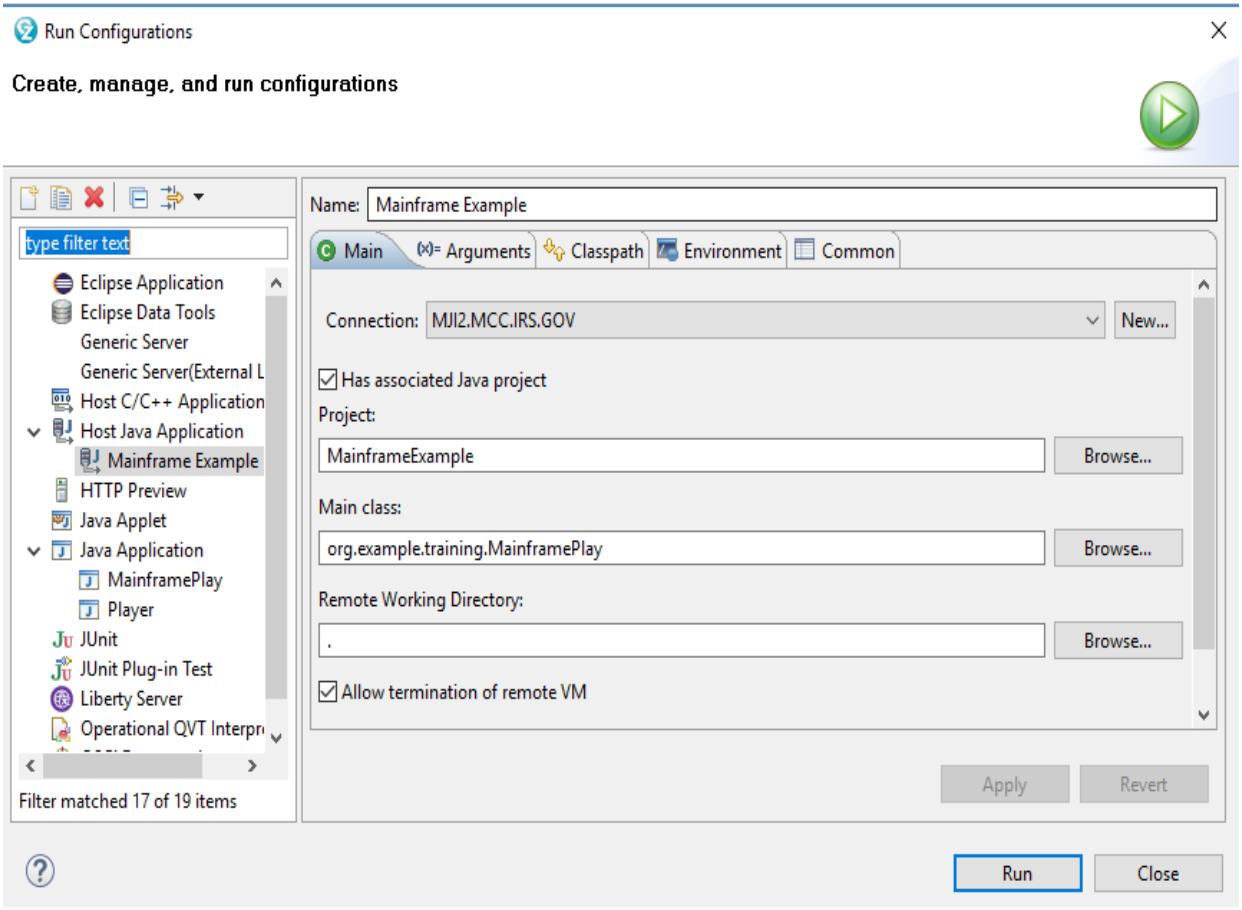
To test this Java Application on the Mainframe we are going to use Option 1, and run it via RDz.

Running via RDz steps:

3.1) From the RDz menu, select the **Run** option
3.2) Select **Run Configurations …**
3.3) Double click **Host Java Application** from the left menu. This is important, if you select Java Application you will be running the application on your PC, not on the Mainframe.

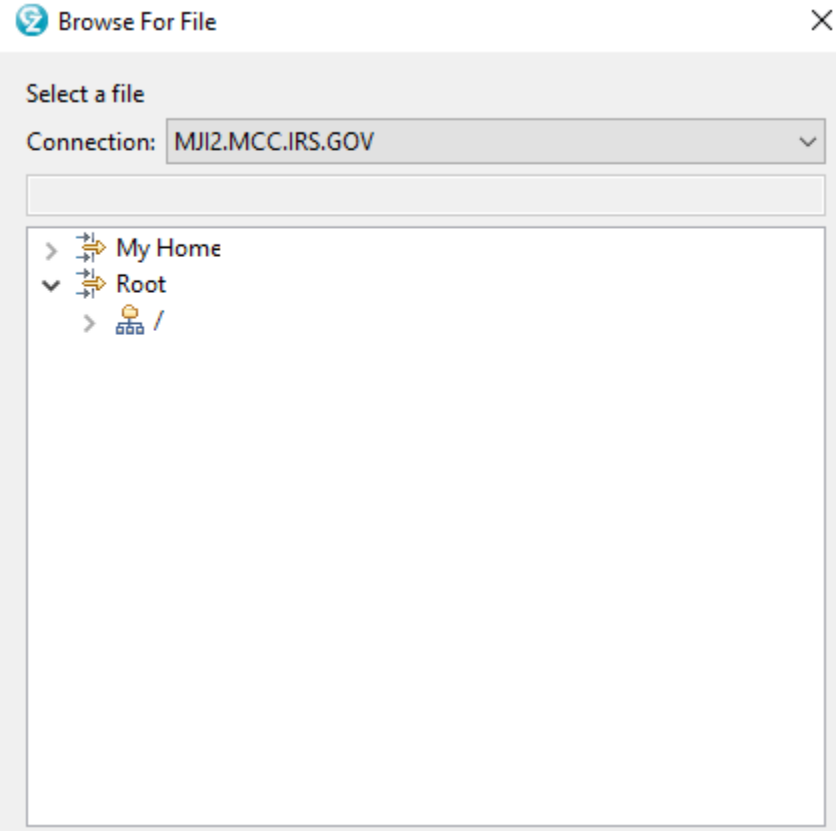
3.4) The **Run Configuration** screen will appear. In the upper right window, rename this configuration **Mainframe Example**.
3.5) On the right side of the Run Configuration screen drop down the Connection list, and select the **MJI2.MCC.IRS.GOV** connection.
3.5) Using the **Browse** buttons fill in the following fields:

Project: MainframeExample
Main class: MainframePlay
Leave the Remote Working Directory at the default value '.'



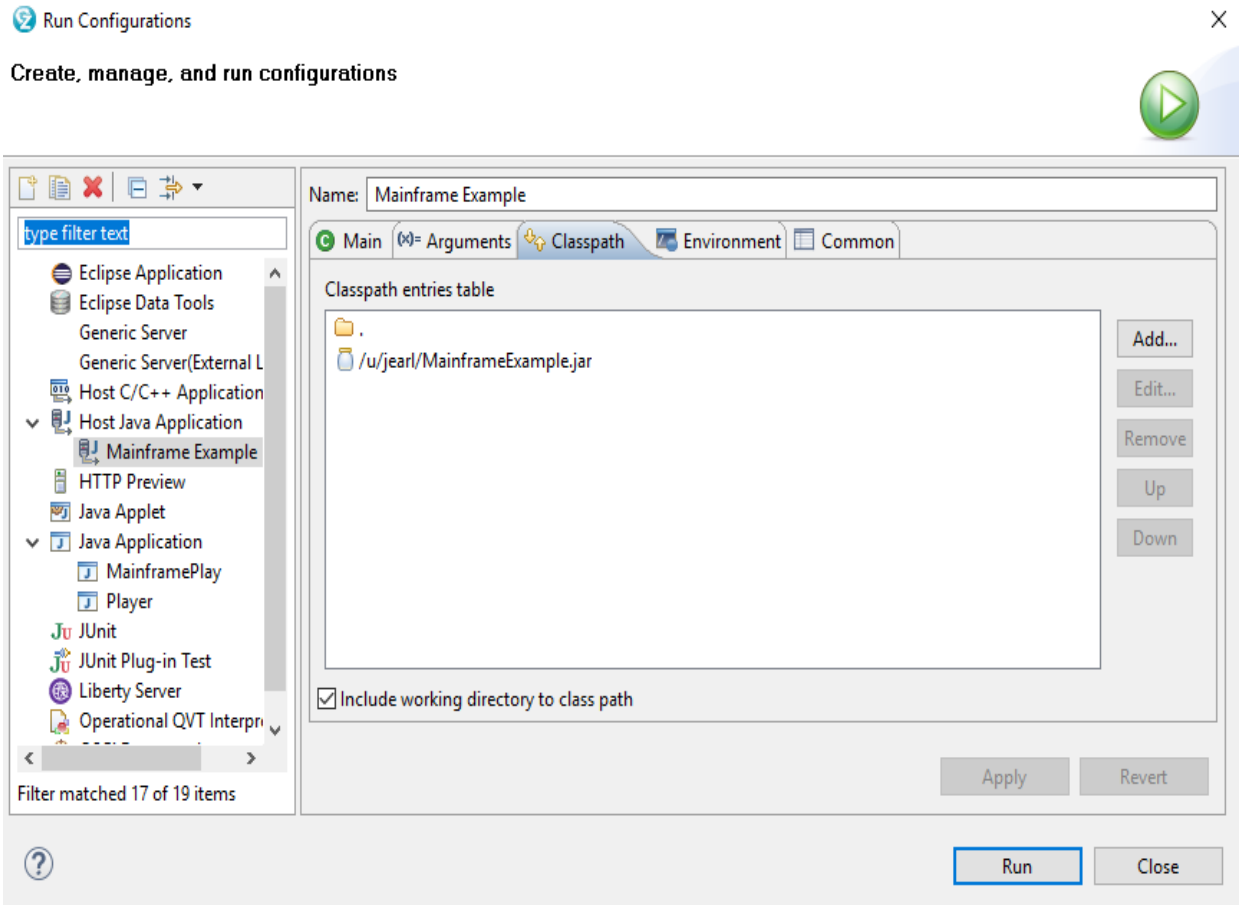
3.6) Click the **Classpath** tab on the right side of this configuration window.
3.7) Click the **Add** button, and click the resulting **Browse** button.

3.8) On the next screen, make sure the Connection option is the **MJI2.MCC.IRS.GOV** connection. You will see the file structure change to reflect the USS file system on the Mainframe.



3.9) Expand the **My Home** section.

3.10) Select the **MainframeExample.jar**, you exported in step 2 of these instructions. Click **OK** on the Add a new classpath entry screen.



3.11) Click **Apply**, this will save this configuration for reuse.
3.12) Click the **Run** button to start the Java Mainframe Application. The Debug Perspective will open, and the Java Mainframe application will run. It will take a few moments for the application to load and run, the upper-left window in the Debug Perspective will show the running job, it will change to **terminated** when the job finishes.
3.13 When the application finishes, open the **Remote Systems** view of the **z/OS Projects** perspective. Right click on the **My Home** listing, and select **Refresh** (F5).
3.14 You will see the output file **Props.txt** listed, you may double click on it to view it.