Lab 2. Connecting to the Mainframe

Overview

In this lab exercise you will connect to an IBM Z mainframe system, view a simple COBOL hello world program in VSCode, submit JCL to compile the COBOL program, and view the output.

Objectives

- Setup connection profile in Zowe Explorer
- Connect to z/OS through connection profile
- Filter data sets
- Submit “hello world” job
- View jobs output

Lab instructions

1. The lab assumes installation of VSCode with Z Open Editor and Zowe Explorer extensions as shown in **Error! Reference source not found.**

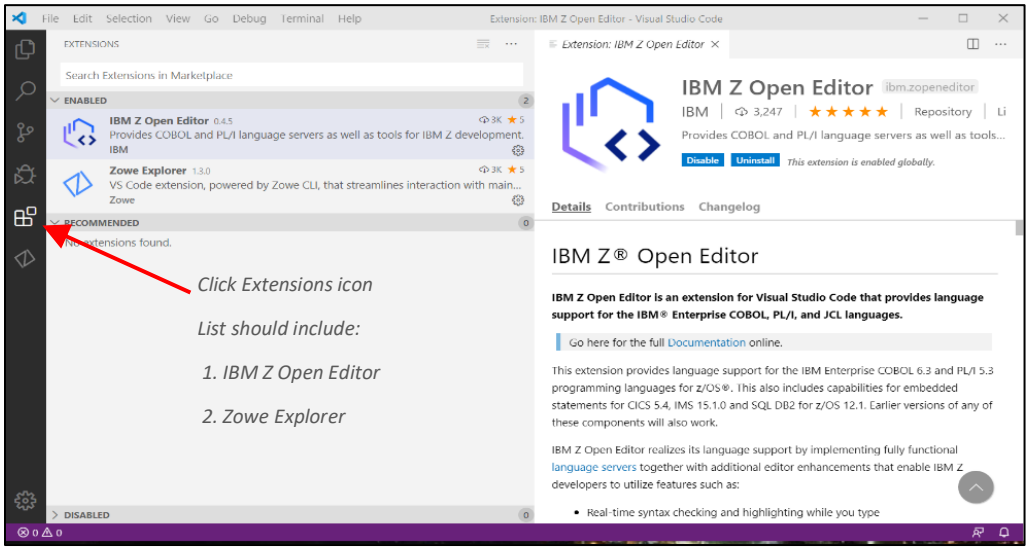

Figure 1. *VSCode extensions*

2. Click the Zowe Explorer icon as shown in Figure 2.

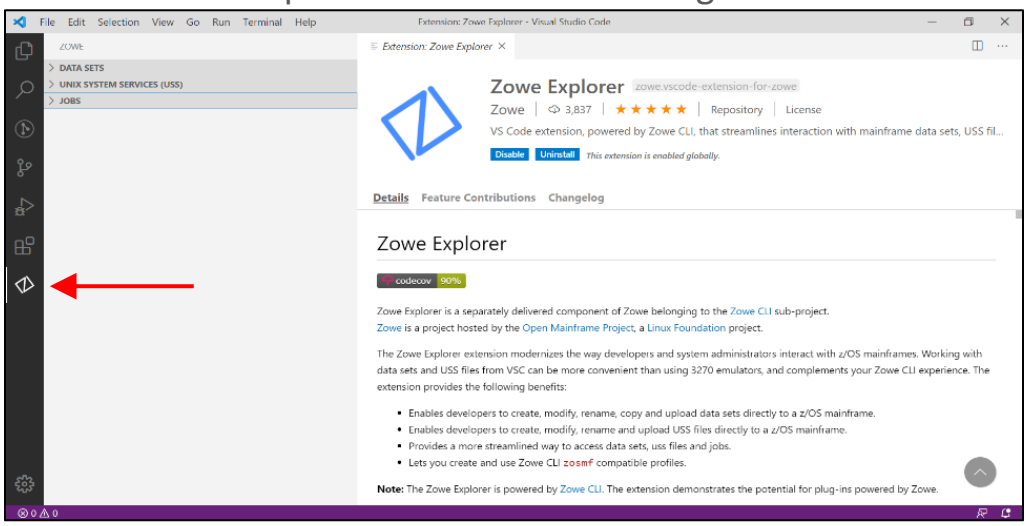

Figure 2. *Zowe Explorer icon*

3. Zowe Explorer can list Data Sets, Unix System Services (USS) files, and Jobs output as shown in Figure 3. a "+" will appear when hovering to the far right of the DATA SETS line. Click the + to define a VSCode profile.

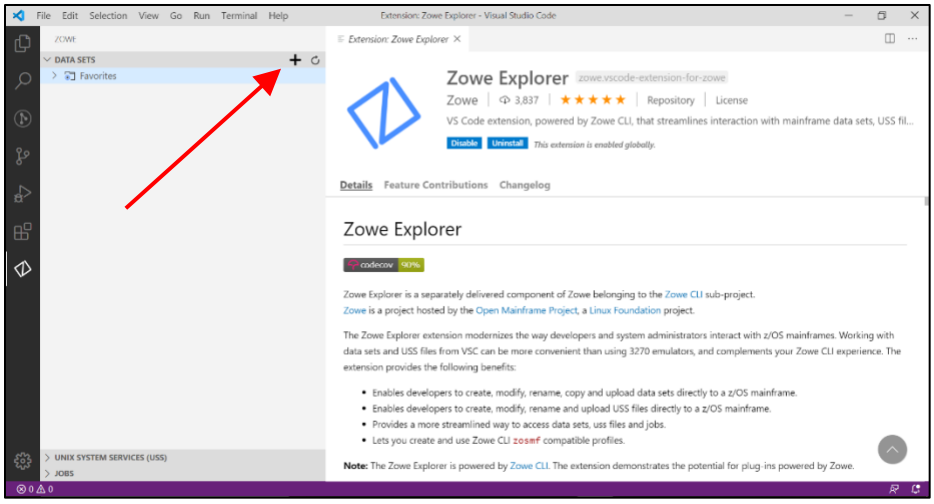

Figure 3. *Zowe Explorer*

4. A box appears to define a new profile. Click + to the left of Create a New Connection to z/OS as shown in Figure 4.

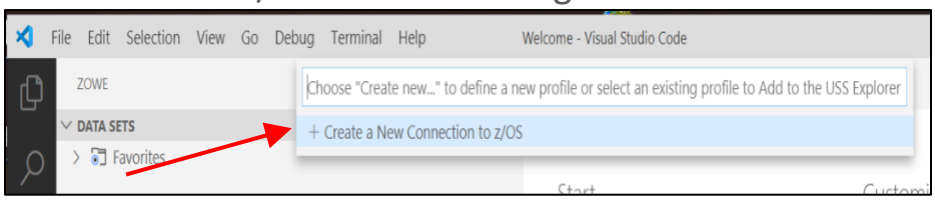

Figure 4. *Create a new connection to z/OS*

5. Select a name to enter, then press enter. Figure 5. uses LearnCOBOL as the selected connection name.

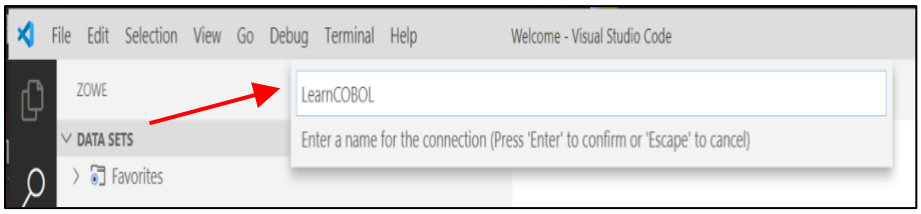

Figure 5. *Set connection name*

6. VSCode prompts for a z/OSMF URL and port as shown in Figure 6. The z/OSMF URL and port will be provided in your account registration confirmation email.

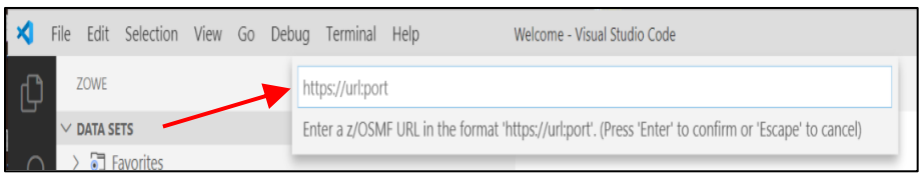

Figure 6. *z/OSMF URL*

7. A sample z/OSMF URL and port is entered in Figure 7.

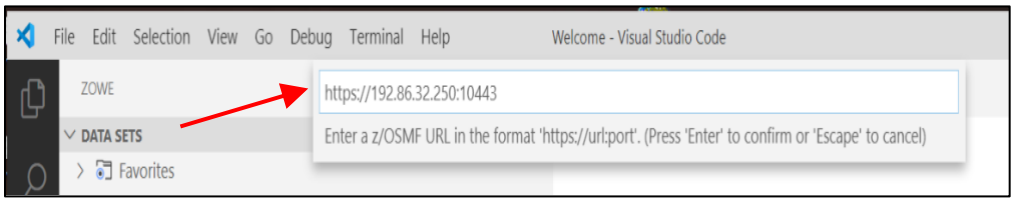

Figure 7. *Specified z/OSMF URL*

8. The connection prompts for Username as shown in Figure 8.

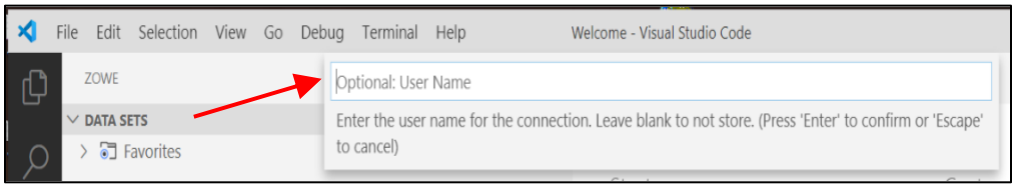

Figure 8. *User name prompt*

9. A sample username, Z99998, is entered as shown in Figure 9. You can find your ID in your account registration confirmation email.

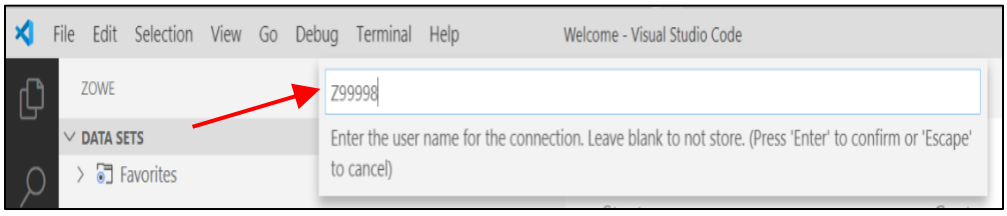

Figure 9. *Specified username*

10. The connection prompts for the Username Password as shown in Figure 10. You can find your username password in your account registration confirmation email.

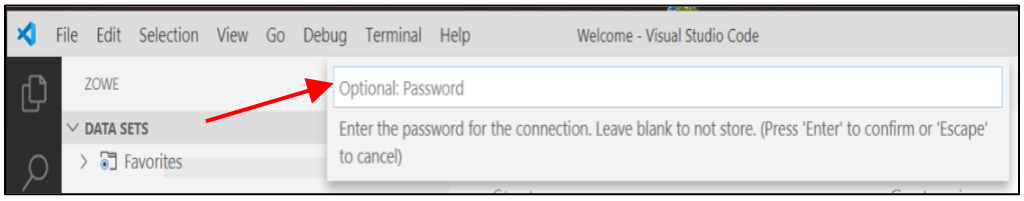

Figure 10. *Password prompt*

11. Enter the Username Password as shown in Figure 11.

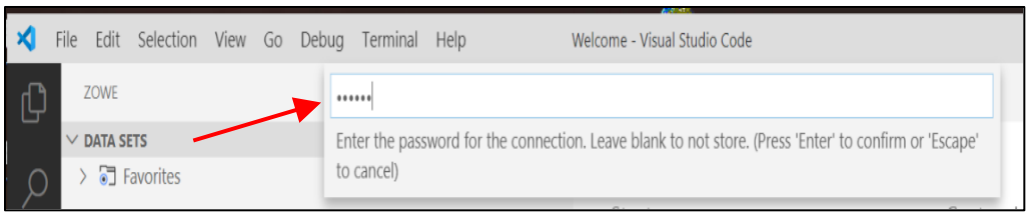

Figure 11. *Specified password*

12. Select **False – Accept connections with self-signed certificates** to authorize workstation connection as shown in Figure 12.

Figure 12. *Accept connections with self-signed certifications*

13. Result is Favorites in the Data Sets, Unix System Services, and Jobs sections as shown in Figure 13.

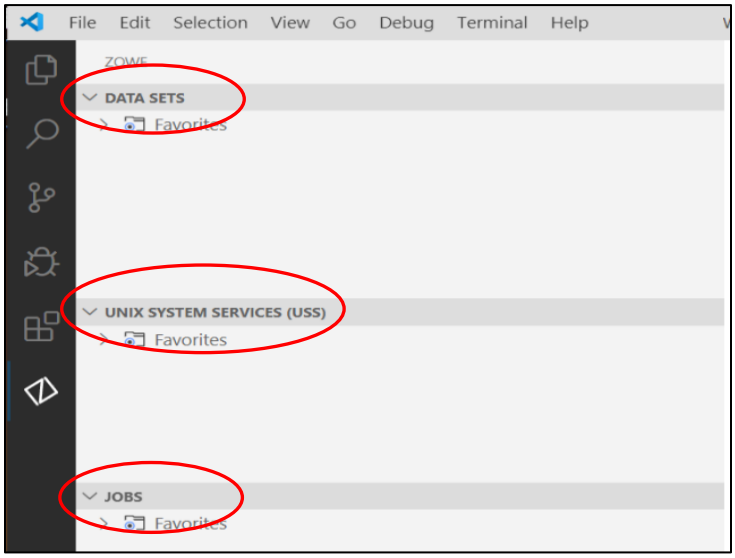

Figure 13. *Favorites*

14. Again, click on the + to the far right on the Data Sets selection. Result is another prompt to Create a New Connection to z/OS, the connection you created in step 5 is in the connection list. Select **your connection** for the Data Sets available to the previously defined , in our case LearnCOBOL, connection to z/OS as shown in Figure 14.

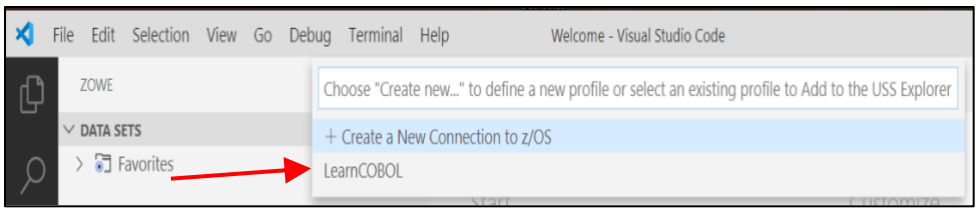

Figure 14. *LearnCOBOL connection*

15. Expansion of the connection (LearnCOBOL) reads “Use the search button to display datasets”. Click the search button as shown in Figure 15.

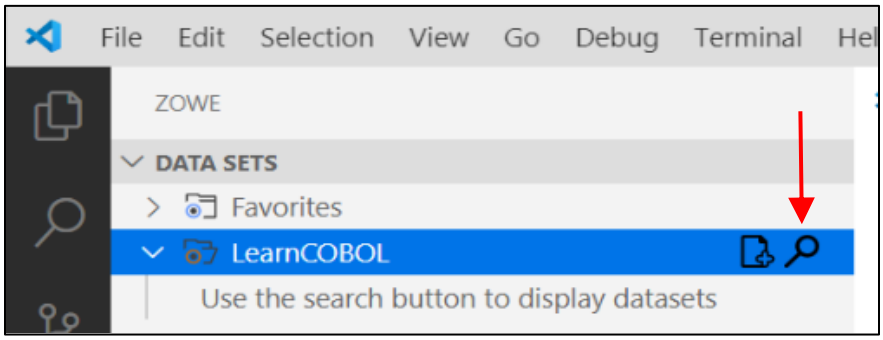

Figure 15. *Search button*

16. A prompt to “Select a filter” appears for ID Z99998. Select the + to ‘Create a new filter” as shown in Figure 16.

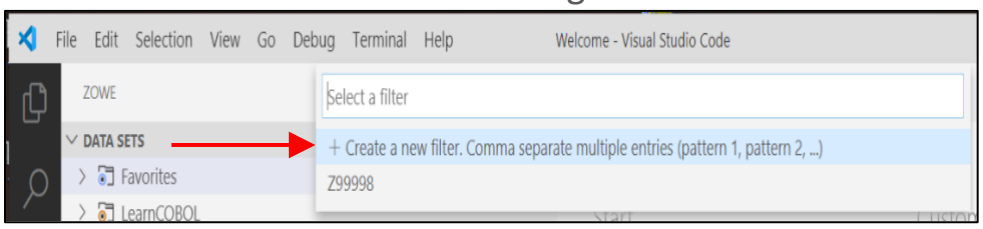

Figure 16. *Select a filter*

17. A prompt appears to enter the filter name to be searched as shown in Figure 17.

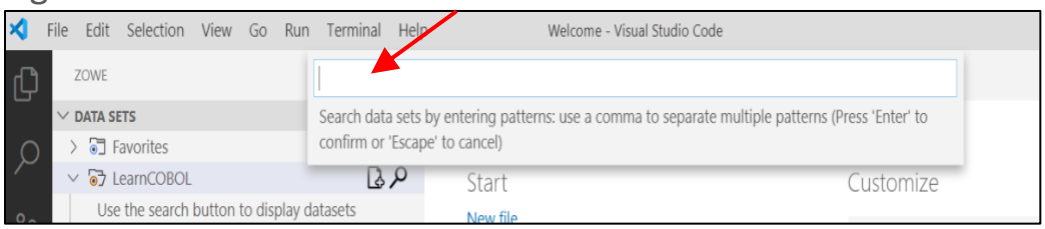

Figure 17. *Filter name to be searched*

18. ID Z99998 has lab data set names that begin the Z99998. Therefore, Z99998 is entered as the filter to searched for ID Z99998 as shown in Figure 18.

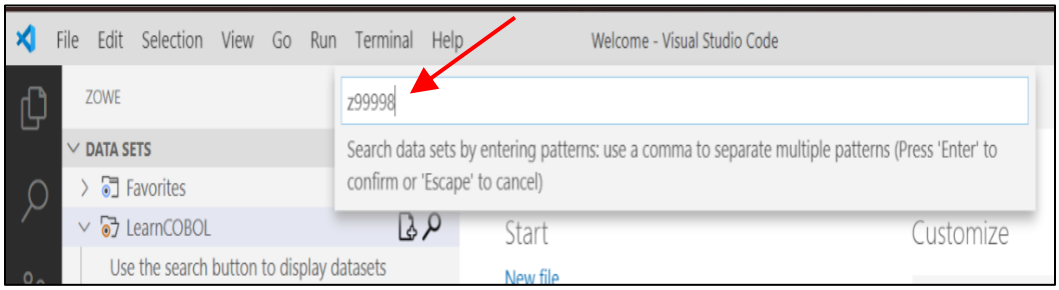

Figure 18. *Entered filter name*

19. A list of data set names beginning with Z99998 for ID Z99998 from z/OS Connection LearnCOBOL appears as shown in Figure 19.

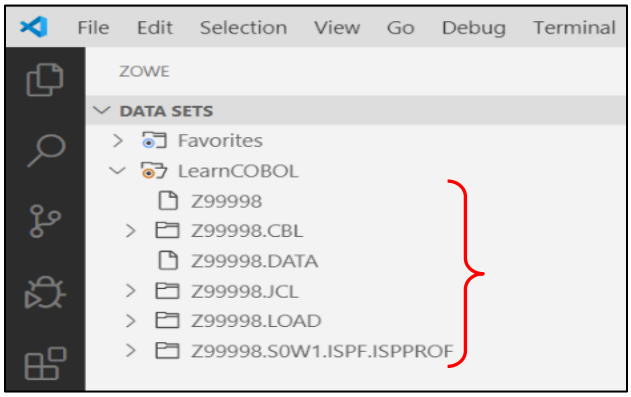

Figure 19. *Filtered data set names*

20. Expand **Z99998.CBL** to view COBOL source members, then select member **HELLO** to see a simple COBOL 'Hello World!' program as shown in Figure 20. 0.

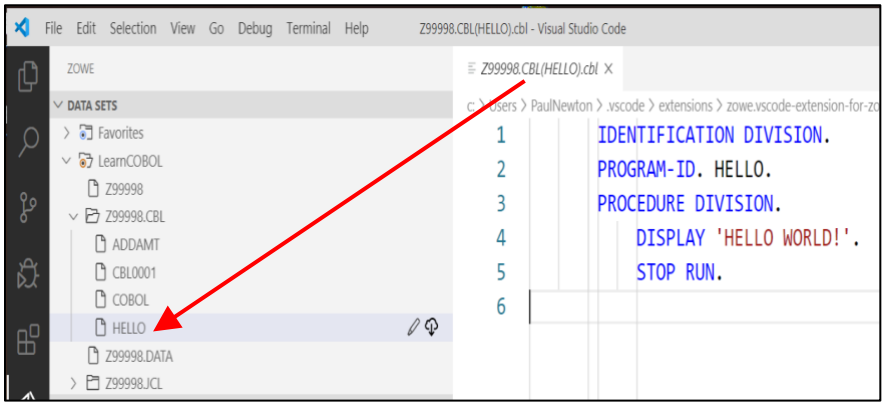

Figure 20. *Z9998.CBL*

21. Expand **Z99998.JCL** to view JCL and select member HELLO which is the JCL to compile and execute simple 'Hello World!' COBOL source code as shown in Figure 21.

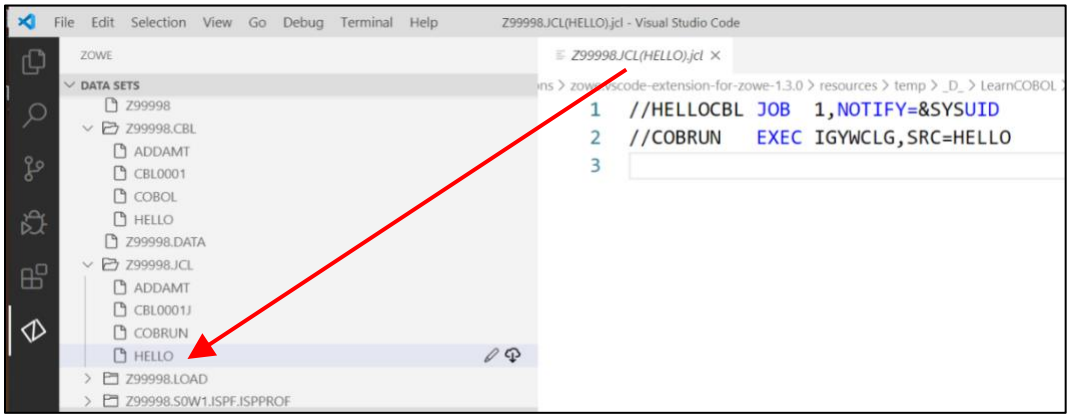

Figure 21. *Z99998.JCL*

22. Right click on JCL member **HELLO**, a section box appears. Select **Submit Job** for system to process HELLO JCL as shown in Figure 22. The submitted JCL job compiles the COBOL HELLO source code, then executes the COBOL HELLO program.

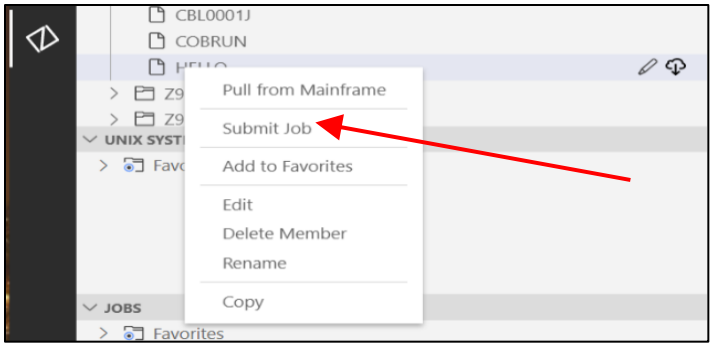

Figure 22. *Submit Job*

23. Observe the 'Jobs' section in Zowe Explorer as shown in Figure 23.

Figure 23. *JOBS section*

24. Again, click on the + to the far right on the Jobs selection. Result is another prompt to 'Create new'. Select your connection (**LearnCOBOL**) from the list as shown in Figure 24.

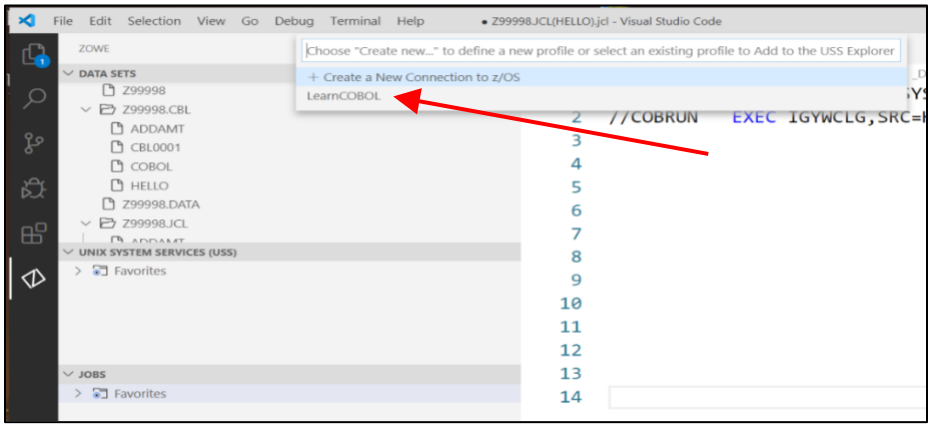

Figure 24. *Select LearnCOBOL connection*

25. As a result, the JCL jobs owned by ID Z99998 appear. HELLOCBL is the JCL job name previously submitted. Expand the **HELLOCBL** output to view sections of the output as shown in Figure 25.

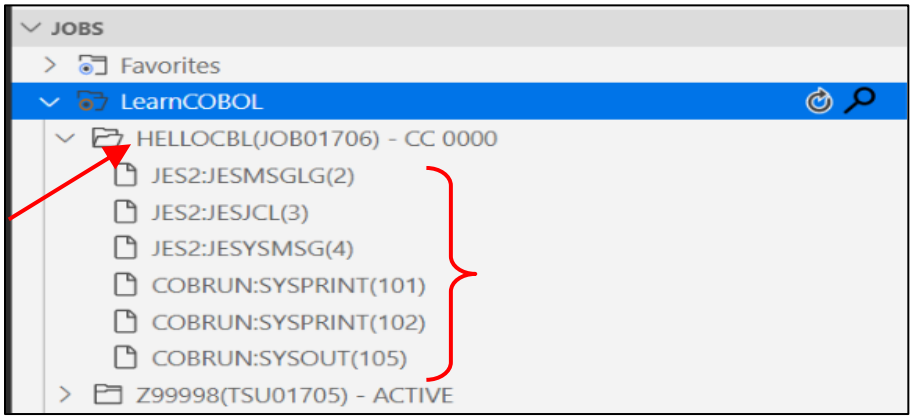

Figure 25. *HELLOCBL output*

26. Select **COBRUN:SYSPRINT(101)** to view the COBOL compiler output. Scroll forward in the COBOL compile to locate the COBOL source code compiled into an executable module as shown in Figure 26. Observe the Indicator Area in column 7, A Area beginning in column 8, and B Area beginning in column 12. Also, observe the period (.) scope terminators in the COBOL source.

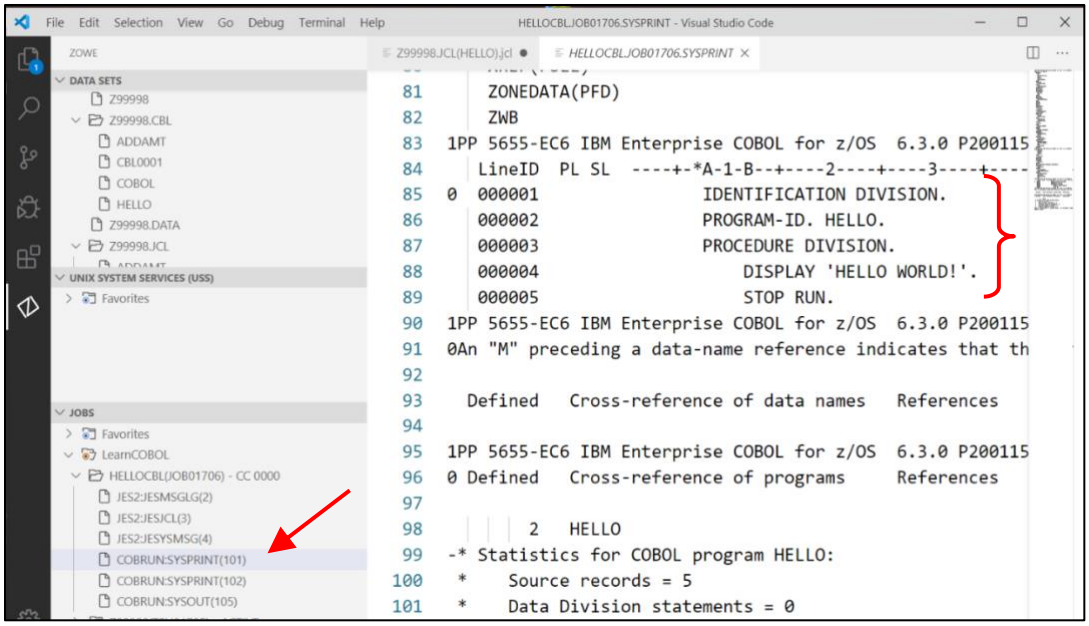

Figure 26. *COBOL compiler output*

27. View the COBOL program execution by selecting **COBRUN:SYSOUT(105)** from the LearnCOBOL in the Jobs section of Zowe Explorer as shown in Figure 27.

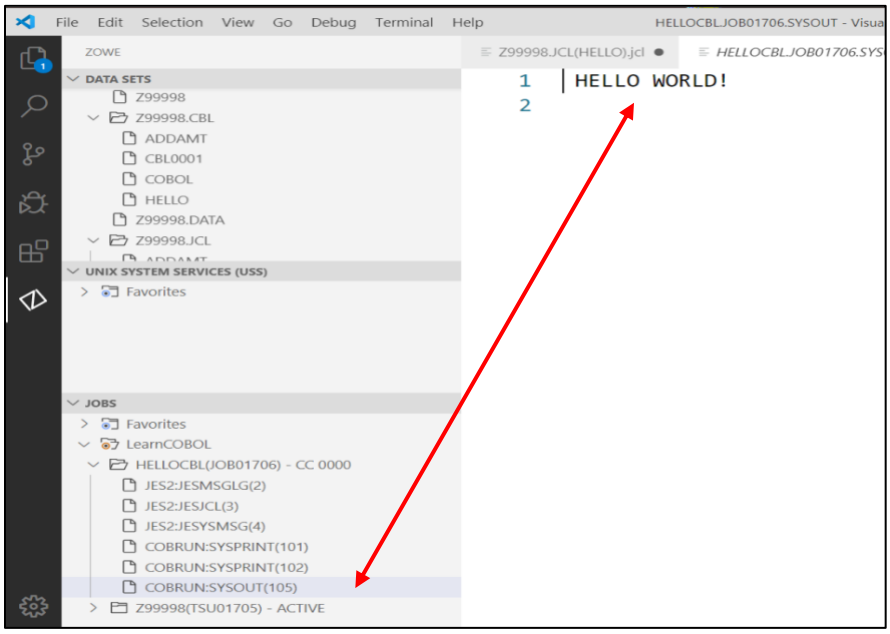

Figure 27. *COBOL program execution*

28. The following URL is another excellent document describing the above VSCode and Zowe Explorer details with examples:

```
https://marketplace.visualstudio.com/items?itemName=Zowe.vscode-extension-for-zowe
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