Introduction to System z Mini-Boot Camp
Machine Exercises

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How to Use This Guide

This guide contains exercises that complement the *Introduction to System z* modules.

As you complete each module, you should meet with your Technical Knowledge Partner (TKP)/mentor to perform any exercises for that module. Each exercise has been reviewed by an experienced expert in System z®. Some of the exercises are based on those that can be found in the *Introduction to the New Mainframe: z/OS Basics* IBM Redbooks® publication that is referenced throughout the course.

Why You Need Assistance from your Technical Knowledge Partner/Mentor

Your Technical Knowledge Partner/mentor will assist you in obtaining access to a System z for performing the exercises. Your TKP will verify that the exercise environment has been set up on the target System z and will ensure that the exercise data sets are available for your specific use.

Your TKP/mentor will assist you during the exercises as well as meet with you to review the significance of each module.

Files Needed for Exercises

These exercises require a zipped file that your TKP must restore. Ask your Technical Knowledge Partner/mentor for assistance. The files necessary for the exercises (packaged in zprof.zip) follow:

```
INSTRUCTOR DATA SET          * FROM SOURCE DATA SET
********************         ******************************
ZPROF.AREA.CODES             * ZPROF.ZSCHOLAR.AREA.CODES
ZPROF.CLASS.LOAD             * ZPROF.ZSCHOLAR.CLASS.LOAD
ZPROF.CLASS.SAMPLIB          * ZPROF.ZSCHOLAR.CLASS.SAMPLIB
ZPROF.CLASS.SOURCE           * ZPROF.ZSCHOLAR.CLASS.SOURCE
ZPROF.EMP.UNLOAD.CNTL        * ZPROF.ZSCHOLAR.EMP.UNLOAD.CNTL
ZPROF.EMP.UNLOAD.DATA        * ZPROF.ZSCHOLAR.EMP.UNLOAD.DATA
ZPROF.INST.CNTL              * ZPROF.ZSCHOLAR.INST.CNTL
ZPROF.JCL                    * ZPROF.ZSCHOLAR.JCL
ZPROF.JCL.NO.DELETE          * ZPROF.ZSCHOLAR.JCL
ZPROF.LANG.CNTL              * ZPROF.ZSCHOLAR.LANG.CNTL
ZPROF.LANG.LOAD              * ZPROF.ZSCHOLAR.LANG.LOAD
ZPROF.LANG.SOURCE            * ZPROF.ZSCHOLAR.LANG.SOURCE
ZPROF.LIB.SOURCE             * ZPROF.ZSCHOLAR.LIB.SOURCE
ZPROF.PROCLIB                * ZPROF.ZSCHOLAR.PROCLIB
ZPROF.PROGRAM.LOAD           * ZPROF.ZSCHOLAR.PROGRAM.LOAD
ZPROF.SORT.CNTL              * ZPROF.ZSCHOLAR.SORT.CNTL
```


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```
ZPROF.SPUFI.CNTL                 * ZPROF.ZSCHOLAR.SPUFI.CNTL


STUDENT DATA SET                 * FROM SOURCE DATA SET
*********************            ******************************
ZUSER##.JCL                      * ZPROF.ZSCHOLAR.JCL
ZUSER##.LANG.CNTL                * ZPROF.ZSCHOLAR.LANG.CNTL
ZUSER##.LANG.SOURCE              * ZPROF.ZSCHOLAR.LANG.SOURCE
ZUSER##.PROGRAM.LOAD             * ZPROF.ZSCHOLAR.PROGRAM.LOAD
ZUSER##.SPUFI.CNTL               * ZPROF.ZSCHOLAR.SPUFI.CNTL

STUDENT DATA SET                 * PARTITIAL FROM SOURCE
*********************            ******************************
ZUSER##.LANG.LOAD                * ZPROF.ZSCHOLAR.LANG.LOAD
```

Sources of the Exercises

Some exercises are extracted from the course Redbook, *The New Mainframe: An Introduction to z/OS*. Others have been developed by experienced System z professionals. In some cases, the exercises include screen captures (not available in the accessible version) that are included at the discretion of the System z professional that developed the particular exercise.

In both cases, the exercises have been reviewed and chosen based on their value to you.

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I. Module - Interactive Facilities of z/OS

These exercises will help you develop skills in using Time Sharing Option/Extensions (TSO/E), Interactive System Productivity Facility (ISPF), and the z/OS® UNIX® command shell. These skills are required for performing lab exercises in the remainder of this course. To perform the lab exercises, each student or team needs a TSO user ID and password (for assistance, contact your Technical Knowledge Partner/mentor).

A. Logging On to z/OS and Entering TSO Commands

Establish a 3270 connection with z/OS using a workstation 3270 emulator and log on with your user ID (we will call this *yourid*). From the TSO READY prompt (after you have keyed in **=x** to exit out of ISPF into native TSO), enter the following commands:

1. **PROFILE** - What is the prefix value? Make a note of this prefix value; it is your user ID on the system.

2. **PROFILE NOPREFIX** - This command changes your profile so that TSO will not place a prefix at the beginning of your commands. Specifying PROFILE PREFIX (with a value) instructs the system to use a value, such as your user ID, to find files in the system. Specifying NOPREFIX instructs the system not to use a value, such as your user ID, to find files in the system. NOPREFIX instructs the system not to limit the results—for example, to files beginning with your user ID—as it would otherwise do by default.

3. **LISTC** - The LISTCAT command (or LISTC, for short) lists the data sets in a particular catalog. Your 3270 emulator has a PA1 (attention) key. You can use the PA1 key to end the command output.

   Note: When you see the three asterisks (***), your screen is filled to capacity. In TSO, the *** indicates that there is more output waiting and you must press **Enter** or PA to see it.

4. **PROFILE PREFIX(userid)** - This command specifies that your user ID is to be prefixed to all non-fully-qualified data set names, which will filter the results of the next command.

5. **LISTC** – Enter this command again. What is displayed? Contrast the output to step 3 above.

6. **ISPF (or ISPPDF)** - Enter the ISPF menu-driven interface of TSO.

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Note: In some systems, you will need to select option P to access the main ISPF screen.

B. Navigating through the ISPF Menu Options

From the ISPF Primary Option Menu, do the following:

1. Select **Utilities**; then select **DSLIST** from the Utility Selection Panel.

2. Type “SYS1” in the **DSNAME LEVEL** field and press **Enter**. What is displayed?

3. Press **F8** to page down or forward, **F7** to page up or backward, **F10** to shift left, and **F11** to shift right. Press **F3** to exit.

4. Type SYS1.PROCLIB in the **DSNAME LEVEL** field and press **Enter**. What is displayed?

5. Type the letter v in the command column to the left of SYS1.PROCLIB. SYS1.PROCLIB is a partitioned data set (PDS) with numerous members. Type the letter s to the left of any member to select the member for viewing. Press **F1**. What specific help is provided?

6. Type =0 on the ISPF command or option line. What is the first option listed in this ISPF Settings panel? Change your settings to place the command line at the bottom of the panel. This change is effective on exit from the ISPF Settings panel.

7. Type PFSHOW OFF; then type PFSHOW ON. What is the difference? How is PFSHOW ON useful?

8. Using the **Exit** function key, return to the ISPF Primary Option Menu. What value is used to select Utilities?

9. Select **Utilities**.

10. In the Utilities Selection panel, what value is used to select DSLIST? Using the Exit function key, return to the ISPF Primary Option Menu. On the option line, enter the Utilities selection value followed by a period; then enter the DSLIST selection value. What panel is displayed?

11. Using the **Exit** function key, return to the ISPF Primary Option Menu. Place your cursor on the Status entry at the very top of the panel and press **Enter**. Select the Calendar value and press **Enter**; then select the Session value. What changed?

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12. Now, set your screen to the original configuration by using the Status pull-down menu and selecting **Session**.

C. Using the ISPF Editor

From the ISPF Primary Option Menu, do the following:

1. Go to the DSLIST Utility panel and type *yourid.*JCL in the **DSNAME LEVEL** field. Press **Enter**.

2. Type the letter e (edit) to the left of *yourid.*JCL. Type the letter s (select) to the left of the member EDITTEST. Type PROFILE on the edit command line. Observe that the data is preceded by profile and message lines. Read the profile settings and messages; then type RESET on the command line. What is the result?

3. Enter any string of characters at the end of the first data line; then press **Enter**. On the command line, type CAN (cancel). Press **Enter** to confirm the cancel request. Again, edit EDITTEST in the data set. Were any of your previous changes saved?

   Tip: As you become more familiar with ISPF, you will learn the letters and numbers for some of the commonly used options. Preceding an option with the = key takes you directly to that option, bypassing the menus in between.

   You can also go directly to nested options with the **=** sign. For example, **=3.4** takes you directly to a commonly used data set utility menu.

4. Move your cursor to one of the top lines on your display. Press **F2**. The result is a second ISPF panel. What occurs when **F9** is pressed repeatedly?

5. Press **F9** to switch to the ISPF Primary Option Menu; then press **F1** to display the ISPF Tutorial panel.

6. From the ISPF Tutorial panel, select **Edit**; then select **Edit Line Commands**. Finally, select **Basic Commands**. Press **Enter** to scroll through the basic commands tutorial. As you do so, frequently switch (by pressing **F9**) to the edit session and use the **Basic Commands** in EDITTEST. Repeat this same process for Move/Copy commands and shifting commands.

7. From the ISPF Tutorial panel, select **Edit**; then select **Edit Primary Commands**. Finally, select **FIND/CHANGE/EXCLUDE** commands. Press **Enter** to scroll through the FIND/CHANGE/EXCLUDE commands

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tutorial. As you do so, frequently switch (by pressing **F9**) to the edit session and use the **FIND/CHANGE/EXCLUDE** commands in EDITTEST.

8. Enter =X on the ISPF Help panel to end the second ISPF panel session. Save and exit the Edit Panel by pressing **F3** to return to the ISPF Primary Option Menu.

Using ISPF in split screen mode

Most ISPF users favor a split screen. This is easily done:

1. Move your cursor to the bottom (or top) line.

2. Press **PF2** to split the screen.

3. Press **PF9** to switch between the two screens.

4. Press **PF3** (perhaps several times) to exit from one of the splits. The screen need not be split at the top or bottom. The split line can be positioned on any line by placing the cursor under that line and pressing **PF2**. More than two screens can be used. Try to use these ISPF commands:

```
START
SWAP LIST
SWAP <screen number>
```

Manipulating text in ISPF

After logging on to TSO/E, activate ISPF; next, look at the ISPF Primary Option Menu.

1. Try each option by typing its number and pressing **Enter**; write down the purpose and function of each option. Note that z/OS installations often heavily customize the ISPF panels to suit their needs.

2. Create a test member in a PDS. Enter some lines of information; then experiment with the commands below. Press **PF1** if you need help.

i	Insert a line.
Enter key	Press **Enter** without entering anything to escape insert mode.
i5	Obtain 5 input lines.
d	Delete a line.
d5	Delete 5 lines.
dd/dd	Delete a block of lines (place a DD on the first line of the block and another DD on the last line of the block).

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r	Repeat (or replicate) a line.
rr/rr	Repeat (replicate) a block of lines (where an RR marks the first line of the block and another RR marks the last line).
c along with a or b	Copy a line after or before another line.
c5 along with a or b	Copy 5 lines after or before another line.
cc/cc along with a or b	Copy a block of lines after or before another line.
m, m5, mm/mm	Move line(s).
x, x5, xx/xx	Exclude lines.
s	Redisplay (show) the lines you excluded.
(	Shift right columns.
)	Shift left columns.
<	Shift left data.
>	Shift right data.

D. Opening the z/OS UNIX Shell and Entering Commands

From the ISPF Primary Option Menu, select option **6 Command**; then enter the command, **OMVS**. From your home directory, enter the following shell commands:

id	Shows your current id.
date	Shows time and date.
man date	Manual of the date command. You can scroll through the panels by pressing Enter. Enter quit to exit the panels.
man man	Help for the manual.
env	Environment variables for this session.
type read	Identifies whether read is a command, a utility, an alias, and so forth.
ls	List a directory.
ls -l	List the current directory.
ls -l /etc.	List the directory /etc.
cal	Display a calendar of the current month.
cal 2005	Display a calendar of the year 2005.
cal 1752	Display the calendar for the year 1752. Is September missing 13 days? [Answer: Yes, all UNIX calendars have 13 days missing from September 1752.]
exit	End the OMVS session.

E. Using the OEDIT and OBROWSE Commands

Another way to start the OMVS shell is by entering the TSO OMVS command on any ISPF panel. From your home directory, enter the following shell commands:

cd /tmp	This directory gives you update authority.
oedit myfile	This directory opens the ISPF edit panel and creates a new

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	text file in the current path. Write some text into the editor. Save and press **F3** to exit.
ls	Display the current directory listing in terse mode.
ls –l	Display the current directory listing in verbose mode.
myfile	*myfile* can be any file you choose to create.
obrowse myfile	Browse the file you just created.
exit	End the OMVS session.

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II. Module - Working with Data Sets

The exercises in this module help you to develop skills in working with data sets using ISPF.

To perform these exercises, you require a TSO user ID and password (see your Technical Knowledge Partner/mentor for assistance).

A. Exploring the Master Catalog

Go to ISPF option 6 and do the following:

1. Type the **LISTC LEVEL(SYS1)** command for a basic listing of all the SYS1 data sets in the master catalog.

2. Notice that the data sets are either NONVASM or CLUSTER (and associated DATA and INDEX entries). The CLUSTERs are for VSAM data sets.

3. Press the **PA1** key to end the listing.

4. Type the **LISTC LEVEL(SYS1) ALL** command for a more extended listing. Note the Volume Serial Number (volser) and device type data for the NONVSAM data sets, which is the basic information in the catalog.

5. Type **LISTC LEVEL(xxx)** to view one of the ALIAS levels and note that it comes from a user catalog.

Note: If you type the profile command with NOPREFIX, it produces a system-wide display when you type the commands LISTC and LISTC ALL.
These commands allow you to display all of the entries in the master catalog, including ALIAS entries.

B. Exploring ISPF Option 3.4

One of the most useful ISPF panels is **Option 3.4**. **Option 3.4** means, starting from the ISPF Primary Option Menu, select **Option 3 (Utilities)**; then select **Option 4** (DSLIST, for data set list). This sequence can be abbreviated by entering **3.4** in the primary menu, or **=3.4** from any panel.

Many ISPF users work almost exclusively within the 3.4 panels. We cover some of the 3.4 functions here and others in subsequent exercises in this text. Use care in working with 3.4 options; they can effect changes on an individual or system-wide basis.

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z/OS users typically use Option 3.4 to check the data sets on a DASD volume or examine the characteristics of a particular data set. Users might need to know:

- What data sets are on this volume?
- How many different data set types are on the volume?
- What are the Data Control Block (DCB) characteristics of a particular file?

Let's answer these questions using a volume specified by your Technical Knowledge Partner or leave the volume serial number field blank and the system will pick a volume:

1. In the 3.4 panel, enter blanks or the volume specified by your TKP in the **Volume Serial** field. Do not enter anything on the Option==> line or in the **DSNAME LEVEL** field.

2. Press **PF8** and **PF**7 to scroll forward and backward through the data set list that is produced.

3. Press **PF11** and **PF10** to scroll right and left to display more information. This action is not true scrolling; the additional information is obtained only when **PF11** or **PF10** is used.

The first **PF11** display provides tracks, percent used, XT, and device type. The XT value is the number of *extents* used to obtain the total tracks shown. The ISPF utility functions can determine the amount of space actually used for some data sets, which is shown as a percentage when possible.

The next **PF11** display shows the DCB characteristics: DSORG, RECFM, LRECL, and BLKSIZE.

PS - Sequential data set (QSAM, BSAM)
PO - Partitioned data set
VS - VSAM data set
blank - Unknown organization (or no data exists)

RECFM, LRECL, and BLKSIZE should be familiar. In some cases, usually when a standard access method is not used or when no data has been written, these parameters cannot be determined. VSAM data sets have no direct equivalent for these parameters and are shown as question marks.

Look at another volume for which a larger range of characteristics can be observed. Your Technical Knowledge Partner should be able to supply volume serial numbers. Another way to find such a volume is to use option 3.2 to find where SYS1.PARMLIB resides; then examine that volume.

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C. Allocating a Data Set with ISPF 3.2

ISPF provides a convenient method for allocating data sets. In this exercise, you create a new library that you can use later in the course for storing program source data. The new data sets should be placed on the *WORK02* volume and should be named *yourid*.LIB.SOURCE (where *yourid* is your student user ID).

For this exercise, assume that 10 tracks of primary space and 5 tracks for secondary extents are sufficient, and that 10 directory blocks is sufficient. Furthermore, you want to store 80-byte fixed-length records in the library. We can do this as follows:

1. Start at the ISPF Primary Options Menu.

2. Go to option 3.2, or go to option 3 (Utilities); then go to option 2 (Data Set).

3. Type the letter A in the **Option ==>** field, but do not press **Enter** yet.

4. Type the name of the new data set in the **Data Set Name** field, but do not press **Enter** yet. The name can be with single quotations marks (for example, '*yourid*.LIB.SOURCE') or without quotation marks (LIB.SOURCE). TSO/ISPF automatically uses the current TSO user ID as the High Level Qualifier (HLQ).

4. Type WORK02 in the **Volume Serial** field and press **Enter**.

5. Complete the indicated fields and press **Enter**:
    - **Space units** = TRKS
    - **Primary quantity** = 10
    - **Secondary quantity** = 5
    - **Directory blocks** = 10
    - **Record format** = FB
    - **Record length** = 80
    - **Block size** = 0 (this entry directs z/OS to select an optimum value)
    - **Data set type** = PDS

These field entries should allocate a new PDS on *WORK02*. Check the upper right corner, where the following message appears:

```
Menu RefList Utilities Help
---------------------------------------------------------------------
-
Data Set Utility Data set allocated
Option ===>
A Allocate new data set C Catalog data set
.....
```


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D. Copying a Source Library

A number of source programs are needed for exercises in *ZPROF*.ZSCHOLAR.LIB.SOURCE on *WORK02*. There are several ways to copy data sets (including libraries). Use the following steps:

1. Go to ISPF option 3.3 (Utilities, Move/Copy).

2. On the first panel:
    a. Type the letter C in the **Option==>** field.
    b. Type '*ZPROF*.ZSCHOLAR.LIB.SOURCE' in the **Data Set Name** field. The single quotation marks are needed in this case.
    c. The Volume Serial is not needed because the data set is cataloged.
    d. Press **Enter**.

3. On the second panel:
    a. Type '*yourid*.LIB.SOURCE' in the **Data Set Name** field and press **Enter**. If this PDS does not exist, type 1 to inherit the attributes of the source library. This action produces a panel that lists all the members in the input library.
    b. Type the letter S before every member name; then press **Enter**.

    This action copies all the indicated members from the source library to the target library. Alternatively, specify *ZPROF*.ZSCHOLAR.LIB.SOURCE(*)' for the input data set to automatically copy all the members. This situation is one of only a few where *wild cards* are used with z/OS data set names.

4. Create another library named '*yourid*.MOVE.SOURCE'. Move several members from LIB.SOURCE into the new library. Verify that the moved members are in the new library and no longer in the old one. Copy those members back into the LIB library. Verify that they exist in both libraries.

5. Rename a member in your '*yourid*.MOVE.SOURCE' library. Rename your '*yourid*.MOVE.SOURCE' library to '*yourid*.TEST.SOURCE'.

E. Working with Data Set Members

There are several ways to add a new member to a library. Create a new member named TEST2 in your library edited previously:

1. From the ISPF Primary Options Menu, go to option 2.

2. Type the name of your library without specifying a member name, for example, *yourid*.JCL. This action provides a list of member names already in the library.

3. Verify that the member EDITTEST has the same contents you used earlier:
    a. If necessary, scroll to display the member name EDITTEST.

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b. Move your cursor to the left of this line.
c. Type the letter S and press **Enter**.
d. Look at your earlier work to assure yourself it is unchanged.
e. Press **PF3** to exit member EDITTEST. You will see the library member name list again.

4. Type S TEST2 (S TEST2 can be read as “select TEST2”) on the command line at the top of the screen and press **Enter**. This action creates member TEST2 and places the screen in input mode.

5. Type a few lines of anything, using the commands and functions we discussed earlier.

6. Press **PF3** to save TEST2 and exit from it.

7. Press **PF3** again to exit from the ISPF Edit function.

For the remainder of the exercises, we will simply say “Enter xxx” when editing something or using other ISPF functions. This instruction means (1) type xxx and (2) press the **Enter** key. The New Line key (which has Enter printed on it) is used only to position the cursor on the screen.

F. Listing a Data Set and Other ISPF 3.4 Options

1. Go to the ISPF 3.4 panel. Enter *yourid* in the **DSNAME LEVEL** field to list all the cataloged data sets in the system with the indicated HLQ.

   An alternative is to leave the **DSNAME LEVEL** field blank and enter WORK02 in the **Volume Serial** field; this action lists all the data sets on the indicated volume. (If both fields are used, the list will contain only the cataloged data sets with a matching HLQ that appear on the specified volume.)

You can invoke a number of functions by entering the appropriate letter before a data set name. For example, position the cursor before one of the data set names and press **PF1** (Help). The Help panel lists all the line commands that can be used from the data set name list of the 2.4 panel. Do not experiment with these without understanding their functions. Not all of these functions are relevant to this class. The relevant commands are:

E - Edit the data set.
B - Browse the data set.
D - Delete the data set.
R - Rename the data set.
Z - Compress a PDS library to recover lost space.
C - Catalog the data set.
U - Uncatalog the data set.

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When you display a member list (as when you edit or browse a library), several line commands are available:

S - Select this member for editing or browsing.
R - Rename the member.
D - Delete the member.

G. Performing a Catalog Search

The ISPF 3.4 option can be used for catalog searches on partial names. Use **PF1 Help** to learn more about this important function, as follows:

1. Select option 3.4.

2. Press **PF1** for help and select **Display a data set list**. Press **Enter** to scroll through the information panels.

3. Select **Specifying the DSNAME LEVEL**. Press **Enter** to scroll through the information panels.

4. Press **PF3** to exit the Help function.

Notice that the 3.4 **DSNAME LEVEL** field does not use quotation marks and the current TSO/E user ID is not automatically used as a prefix for names in this field. This situation is one of the few exceptions to the general rule for specifying data set names in TSO.

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III. Module - Using Job Control Language (JCL) and System Display and Search Facility (SDSF)

This lab exercise helps you develop skills in creating batch jobs and submitting them for execution on z/OS. To perform the following exercises, you require a TSO user ID and password (for assistance, see your Technical Knowledge Partner/mentor).

A. Creating a Simple Job

1. From ISPF, navigate to the Data Set List Utility panel and enter *yourid*.JCL in the **DSNAME LEVEL** field.

2. Enter the letter e (edit) to the left of *yourid*.JCL in the command column. Enter the letter s (select) to the left of the member JCLTEST. Type **RESET** on the editor command line.

3. Look for the line of the JCL in the data set, ***//*STEP1 EXEC PGM=IEFBR14**. This system utility, **IEFBR14**, does not request any input or output and is designed to complete with a successful return code (0). Please delete all code in the data set that was restored except this one line of code.

4. Enter SUBMIT or SUB on the command line.

5. Enter 1 in response to the message:
   IKJ56700A ENTER JOBNAME CHARACTER(S)
   The result will be the message:
   IKJ56250I JOB *yourid*1(JOB00037) SUBMITTED
   Note: Whenever you see three asterisks (***), it means there is more data to display. Press **Enter** to continue.

6. When the job finishes, you receive the message:
   $HASP165 yourid1 ENDED AT SYS1 MAXCC=0 CN(INTERNAL)

7. Add (insert) a new first line in your file that will hold a JOB statement. The JOB statement must precede the EXEC statement. (**Hint:** Replicate (r) the single EXEC statement; then overwrite the EXEC statement with your JOB statement.) This JOB statement reads:
   //*yourid*A JOB 1

8. Replace *yourid* with your team user ID, leave the “A,” and then submit this JCL and press **PF3** to save the file and exit the editor.

9. From the ISPF Primary Option Menu, find SDSF. You can use the

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split screen function for a new screen session, giving you one session for the DSLIST and the other for SDSF.

10. In the SDSF menu, enter PREFIX yourid*; then enter ST (Status Panel). The system displays both jobs that you submitted. Enter the letter S (select) to the left of either job; then page up and page down to view the messages produced from the execution. Press **PF3** to exit.

11. Edit JCLTEST again, and insert the following lines at the bottom:

```
//CREATE DD DSN=yourid.MYTEST,DISP=(NEW,CATLG),
//  UNIT=SYSDA,SPACE=(TRK,1)
```

12. Submit the content of JCLTEST created above, press **PF3** (save and exit edit), and view the output of this job using SDSF. Notice that you have two jobs with the same job name. The job name with the highest JOBID number is the last one that was run.
    a. What was the condition code? If it was greater than 0, page down to the bottom of the output listing to locate the JCL error message. Correct the JCLTEST and resubmit. Repeat until you receive cond code=0000.
    b. Navigate to the Data Set List Utility panel (=3.4) and enter *yourid*.MYTEST in the **DSNAME Level** field. What volume was used to store the data set?
    c. Enter DEL / in the numbered left (command) column of the data set to delete the data set. A confirmation message may appear asking you to confirm that you want to delete the data set.
    d. The batch execution of program IEFBR14, which requires no inputs or outputs, returns a condition code 0 (success) if there were no JCL errors. Although IEFBR14 does no I/O, JCL instructions are read and executed by the system. This program is useful for creating (DISP=NEW) and deleting (DISP=(OLD,DELETE)) data sets on a DD statement.

13. From any ISPF panel, in the **TSO Command** field, type:

    SUBMIT JCL(JCLERROR)

    Your user ID is the prefix (HLQ) of the data set JCL containing the member JCLERROR.
    a. The system will prompt you to enter a suffix character for a generated job card. Take note of the job name and job number from the submit messages.
    b. Use SDSF and select the job output. Page down to the bottom. Do

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you see the JCL error? What are the incorrect and correct JCL DD operands? Correct the JCL error located in *yourid*.JCL(JCLERROR). Resubmit JCLERROR to validate your correction.

14. From any ISPF panel, enter TSO SUBMIT JCL(SORT). Your user ID is the assumed prefix of the data set JCL containing the member SORT.
    a. The system will prompt you to enter a suffix character for a generated job card. Take note of the job name and job number from the submit messages.
    b. Use SDSF and type a **?** to the left of the job name. The system displays the individual listing from the job. Enter the letter s (select) to the left of SORTOUT to view the sort output; then press **PF3** to return. Select JESJCL. Notice the "job statement generated message" and the "substitution JCL" messages.

15. Now, purge some (or all) unnecessary job output. From SDSF, enter the letter p (purge) to the left of any job that you would like to purge from the JES output queue.

16. From the ISPF panel, enter TSO SUBMIT JCL(SORT) and review the output.

17. From the ISPF panel, enter TSO SUBMIT JCL(SORTPROC) and review the output. You may not see the output in the SDSF ST panel because the job name does not start with *yourid*. To see all output, enter PRE *, and then OWNER yourid to see only the jobs that are owned by you.

18. What JCL differences exist between SORT and SORTPROC? In both JCL streams, the SYSIN DD statement references the sort control statement. Where is the sort control statement located?

    Tip: All JCL references to &SYSUID are replaced with the user ID that submitted the job.

19. Edit the PDS member containing the SORT control statement. Change FIELD=(1,3,CH,A) to FIELD=(6,20,CH,A). Press **PF3**; then, from the ISPF panel, enter TSO SUBMIT JCL(SORT). Review the job's output using SDSF. Was the output sorted by code or area?

    From the ISPF panel, enter TSO LISTC ALL. By default, the system lists all catalog entries for data sets beginning with *yourid*. The system catalog returns the data set names, the name of the catalog storing the

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detailed information, the volume location, and a device type (devtype) number that equates to specific values for JCL UNIT= operand. LISTC is an abbreviation for LISTCAT.

B. Using SDSF

From the ISPF Primary Option Menu, locate and select **System Display and Search Facility (SDSF)**, which is a utility that lets you display output data sets. Select **More** to find the SDSF option (5), or simply enter **=M.5** (if your system is set up to support this shortcut). The ISPF Primary Option Menu typically includes more selections than those listed on the first panel, with instructions on how to display the additional selections.

1. Enter LOG; then press **F10** (shift left), **F11** (shift right), **F7** (page up), and **F8** (page down). Enter TOP; then enter BOTTOM on the command input line. Enter DOWN 500 and UP 500 on the command input line. You will learn how to read this system log later.

2. Observe the SCROLL value to the far left on the command input line. Scroll ===> PAGE

   Tab to the SCROLL value. The values for SCROLL can be:

C or CSR	Scroll to where you placed the cursor
P or PAGE	Full page or screen
H or HALF	Half page or half screen

3. You will find the SCROLL value on many ISPF panels, including the editor. You can change this value by entering the first letter of the scroll mode you select over the first letter of the current value. Change the value to CSR, place the cursor on another line in the body of the system log, and press **F7**. Did doing this place the line with the cursor at the top?

4. Enter ST (status) on the SDSF command input line; then SET DISPLAY ON. Observe the values for Prefix, Best, Owner, and Susanne. To display all of the current values for each, enter * as a filter, for example:

   PREFIX *
   OWNER *
   DEST

   The result should be: PREFIX=*
   DEST=(ALL) OWNER=*

5. Enter DA to display all active jobs. Enter ST to retrieve the status of all jobs in the input, active, and output queues. Once again, press **F7** (page up), **F8** (page down), **F10** (shift left), and **F11** (shift right).

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IV. Module - Batch Processing and JES

A. Submitting a Job and Checking the Results

Edit member COBOL1 in the *yourid*.LIB.SOURCE library and inspect the COBOL program. There is no JCL included in the COBOL program. Now, edit member COBOL1 in *yourid*.JCL. Inspect the JCL carefully. It uses a JCL procedure to compile and run a COBOL program. Follow these steps:

1. Change the job name to *yourid* plus additional characters.

2. Change the NOTIFY parameter to your user ID.

3. Add TYPRUN=SCAN to your job card.

4. Enter SUB on the ISPF command line to submit the job.

5. Split your ISPF screen and go to SDSF on the new screen (you might already have this split screen from an earlier exercise).

6. In SDSF, go to the ST (Status) display and look for your job name. You may need to enter a PRE or OWNER command on the SDSF command line to see any job names. (A previous user may have issued a prefix command to see only certain job names.)

7. Enter the letter S beside your job name to see all of the printed output:
   - Messages from JES2
   - Messages from the initiator
   - Messages from the COBOL compiler
   - Messages from the binder
   - Output from the COBOL program

8. Remove TYPRUN=SCAN when you are ready to run your job.

9. Press **PF3** to return and type **?** beside your job name to display another output format.

   Ask your Technical Knowledge Partner to tell you the purposes of the various JES2 and initiator messages.
   - Resubmit the job with MSGLEVEL=(1,1) on the JOB statement.
   - Resubmit the job with MSGLEVEL=(0,0) on the JOB statement.

   The MSGLEVEL parameter controls the number of initiator messages that are produced.

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V. Module - Using Programming Languages in z/OS

A. Display the Source Code for an HLL Application

The following exercise is based on the demonstration for this module. Even if you viewed the demonstration, please follow these instructions and try it yourself.

1. Log on to TSO with your user ID.

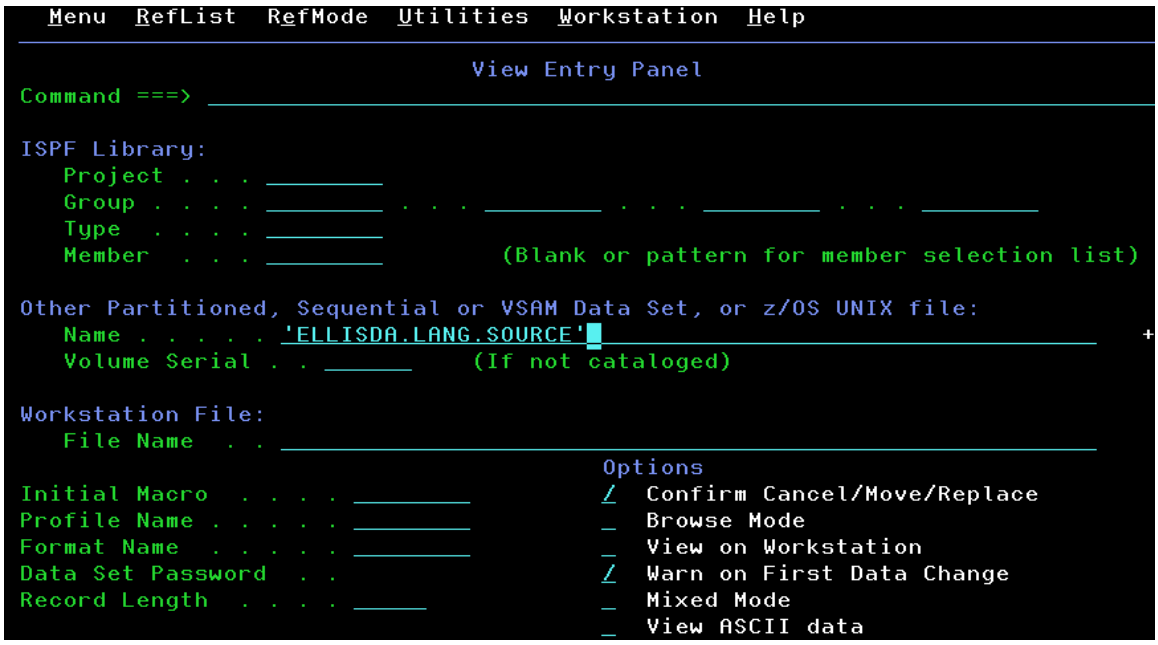
2. If ISPF does not start automatically and you see the TSO READY prompt, enter ISPF and press **Enter**.

3. Select option 1, View - Display source data or listings, from the ISPF menu.

4. Below the heading, Other Partitioned, Sequential or VSAM Data Set, or z/OS UNIX file, enter:

   ‘*userid*.LANG.SOURCE’

5. Replace *userid* with your user ID and enclose the data set name in quotation marks.



6. Press **Enter** to open the data set.

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7. Select the COBOL or COBOL 2 member by entering the letter S next to it; press the **Enter** key to view the member.

8. Review the contents of the source code.

9. Press **F7** and **F8** to scroll through the source code member.

10. When you finish reviewing the source code, press **F3** (end function key) to close the browse window and return to the member list.

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11. Review the other source members in the data set.

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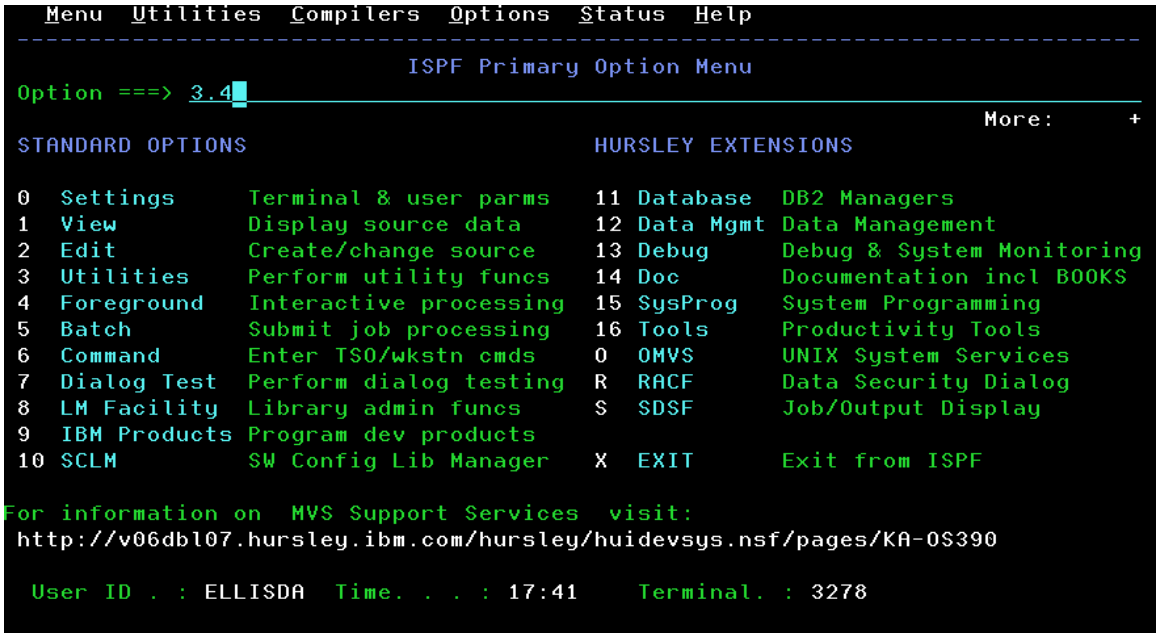
VI. Module - Compiling and Binding Programs

A. Submitting a COBOL Compile

The following exercise is based on the demonstration for this module. Even if you have viewed the demonstration, please follow these instructions and try it yourself.

1. Enter 3.4 on the ISPF main menu.



2. Press **Enter**.

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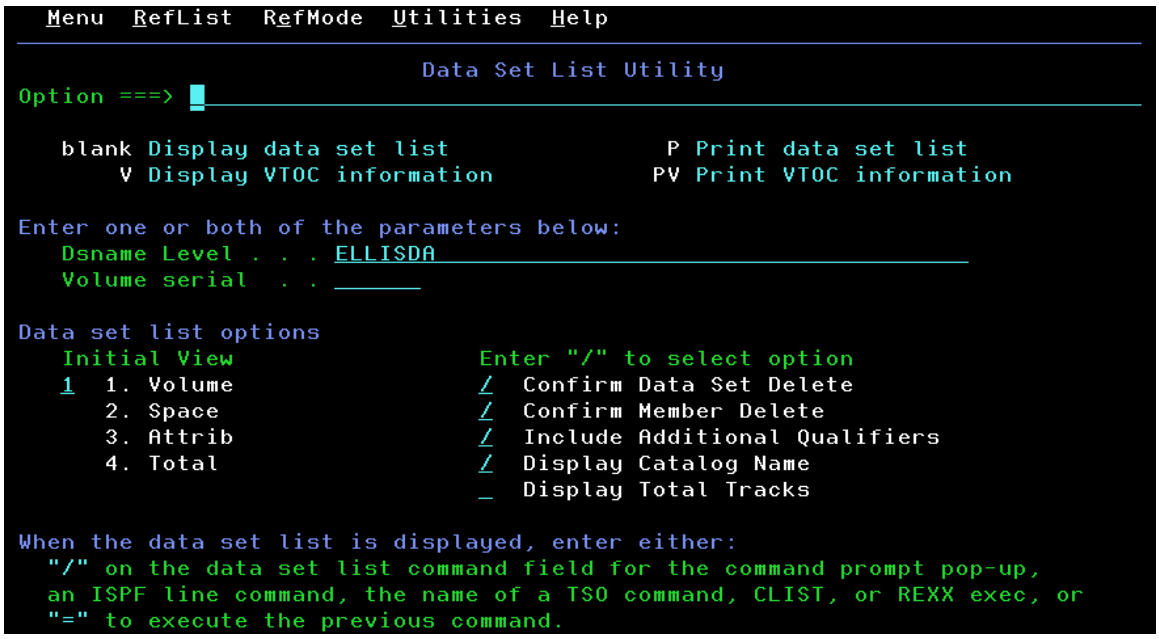
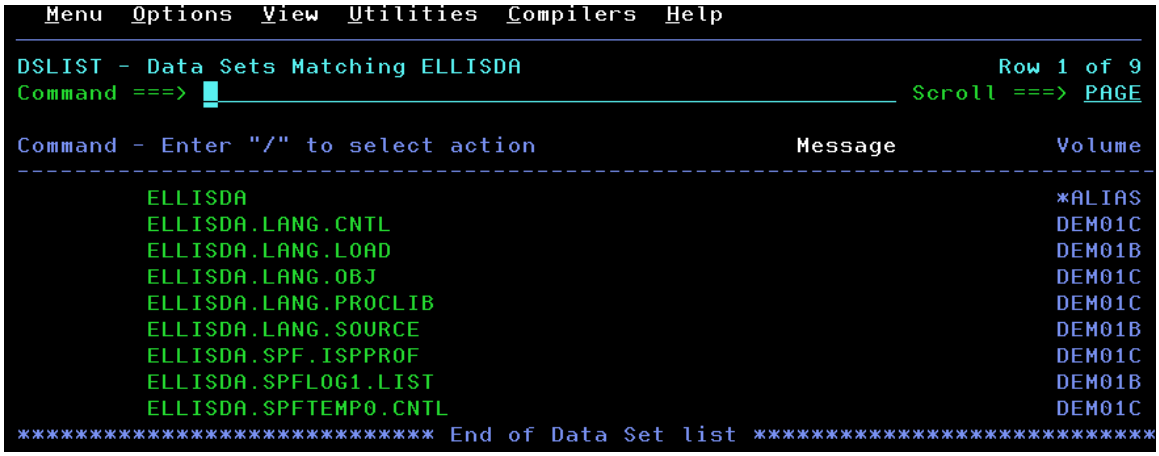
3. Enter your user ID in the **DSNAME LEVEL** field.



4. The system lists all the data sets starting with your user ID.



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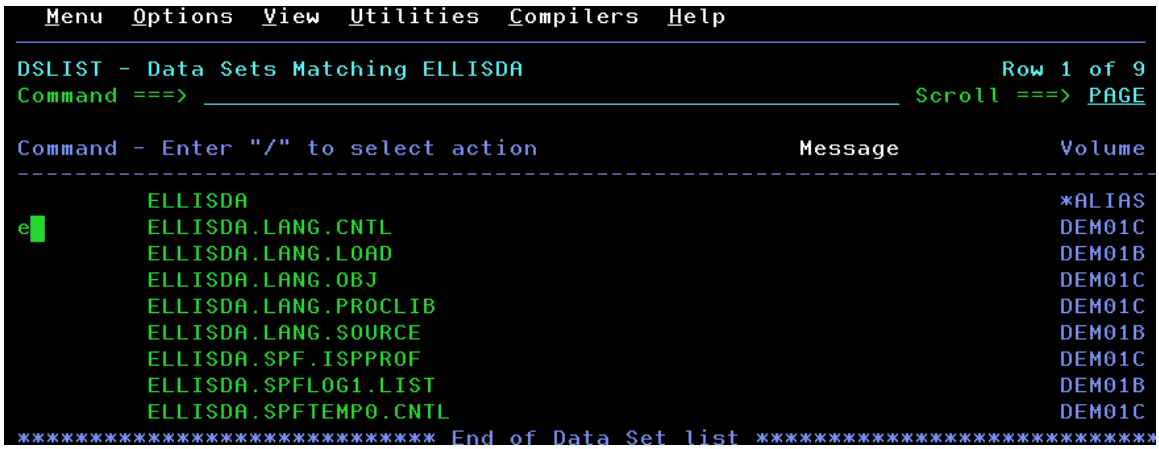
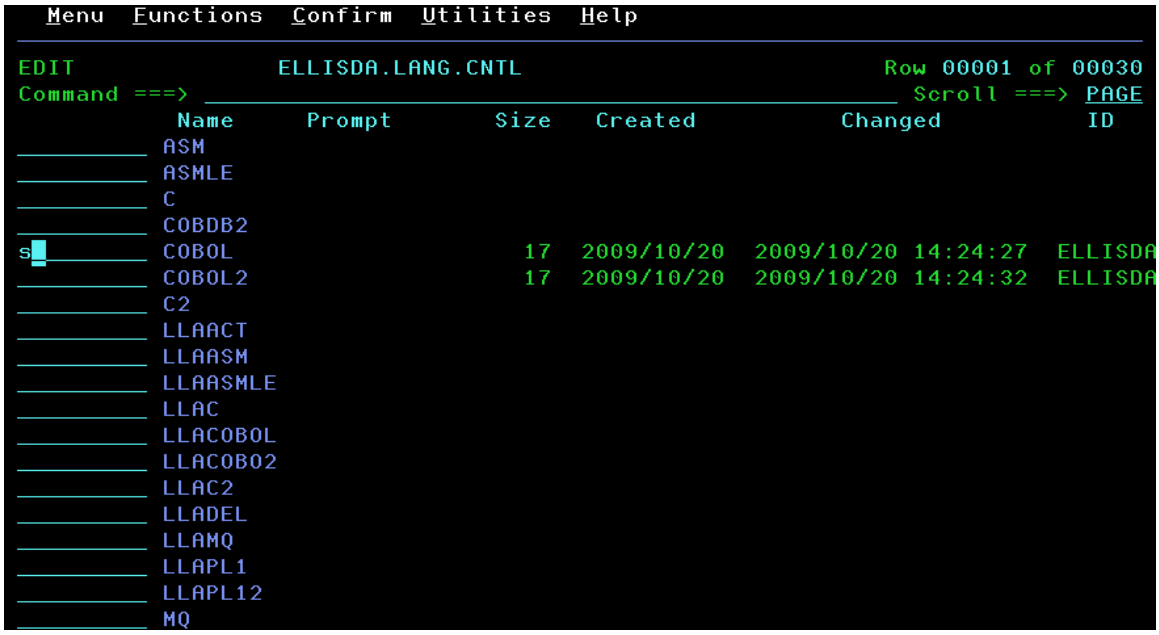
5. Next to the *userid*.LANG.CNTL data set, enter the letter E (for Edit).



6. The system displays the edit member selection list. Enter the letter S next to the COBOL member.



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```
 File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
EDIT       ELLISDA.LANG.CNTL(COBOL) - 01.02               Columns 00001 00072
Command ===> _                                             Scroll ===> CSR
****** ***************************** Top of Data ********************************
000102 //COBOL1   JOB  (DELLI,B510,DELLI),'*DAVE ELLIS*',
000103 //         MSGCLASS=X,CLASS=A,MSGLEVEL=(1,1)
000104 //ZSCHOLIB JCLLIB ORDER=(ELLISDA.LANG.PROCLIB)
000105 //*************************************************
000106 //* C DELLI2.ZSCHOLAR TO YOURID
000107 //* C ZPROF PROFUID ALL
000108 //*   ==> IF YOU USE NOT ZPROF AS INSTRUCTORID
000109 //* DELETE ZSCHOLIB STATEMENT IF YOU WANT TO USE
000110 //*       THE DEFAULT PROC LIBRARY
000111 //* ORIGINAL COPIED FROM  GMULLER.LANG.CNTL
000120 //*************************************************
000200 //* COMPILE COBOL PROGRAM
000210 //*************************************************
000300 //STEP1 EXEC IGYWCL
000400 //SYSIN        DD DSN=ELLISDA.LANG.SOURCE(COBOL),DISP=SHR
000410 //COBOL.SYSLIB DD DSN=PP.ADLE370.ZOS110.SCEESAMP,DISP=SHR
000500 //LKED.SYSLMOD DD DSN=ELLISDA.LANG.LOAD(COBOL),DISP=SHR
****** ***************************** Bottom of Data *****************************
```

7. Edit the JCL to add a valid job statement (or card). Also, enter the data set name and the member name of the source member for the SYSIN DD and the load library and the member name for the SYSLMOD DD statement (or card).

8. Edit the COBOL.SYSLIB DD card to point to the SCEESAMP library.

9. To submit the compile, enter SUB (for submit) on the command line.

```
 File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
EDIT       ELLISDA.LANG.CNTL(COBOL) - 01.02               Columns 00001 00072
Command ===> SUB_                                          Scroll ===> CSR
****** ***************************** Top of Data ********************************
000102 //COBOL1   JOB  (DELLI,B510,DELLI),'*DAVE ELLIS*',
000103 //         MSGCLASS=X,CLASS=A,MSGLEVEL=(1,1)
000104 //ZSCHOLIB JCLLIB ORDER=(ELLISDA.LANG.PROCLIB)
000105 //*************************************************
000106 //* C DELLI2.ZSCHOLAR TO YOURID
000107 //* C ZPROF PROFUID ALL
000108 //*   ==> IF YOU USE NOT ZPROF AS INSTRUCTORID
000109 //* DELETE ZSCHOLIB STATEMENT IF YOU WANT TO USE
000110 //*       THE DEFAULT PROC LIBRARY
000111 //* ORIGINAL COPIED FROM  GMULLER.LANG.CNTL
000120 //*************************************************
000200 //* COMPILE COBOL PROGRAM
000210 //*************************************************
000300 //STEP1 EXEC IGYWCL
000400 //SYSIN        DD DSN=ELLISDA.LANG.SOURCE(COBOL),DISP=SHR
000410 //COBOL.SYSLIB DD DSN=PP.ADLE370.ZOS110.SCEESAMP,DISP=SHR
000500 //LKED.SYSLMOD DD DSN=ELLISDA.LANG.LOAD(COBOL),DISP=SHR
****** ***************************** Bottom of Data *****************************
```


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```
 File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
EDIT       ELLISDA.LANG.CNTL(COBOL) - 01.02               Columns 00001 00072
Command ===> SUB                                          Scroll ===> CSR
****** ***************************** Top of Data ******************************
000102 //COBOL1   JOB  (DELLI,B510,DELLI),'*DAVE ELLIS*',
000103 //         MSGCLASS=X,CLASS=A,MSGLEVEL=(1,1)
000104 //ZSCHOLIB JCLLIB ORDER=(ELLISDA.LANG.PROCLIB)
000105 //*************************************************
000106 //* C DELLI2.ZSCHOLAR TO YOURID
000107 //* C ZPROF PROFUID ALL
000108 //*   ==> IF YOU USE NOT ZPROF AS INSTRUCTORID
000109 //* DELETE ZSCHOLIB STATEMENT IF YOU WANT TO USE
000110 //*       THE DEFAULT PROC LIBRARY
000111 //* ORIGINAL COPIED FROM  GMULLER.LANG.CNTL
000120 //*************************************************
000200 //* COMPILE COBOL PROGRAM
000210 //*************************************************
000300 //STEP1 EXEC IGYWCL
000400 //SYSIN        DD DSN=ELLISDA.LANG.SOURCE(COBOL),DISP=SHR
JOB COBOL1(JOB06126) SUBMITTED
***
```

B. Checking the Compile Results

The following exercise is based on the demonstration for this module. Even if you have viewed the demonstration, please follow these instructions and try it yourself.

1. Go to SDSF and enter ST (for job status) on the command line.

```
 Display  Filter  View  Print  Options  Help
-------------------------------------------------------------------------------
HQX7750 -----------------  SDSF PRIMARY OPTION MENU  --------------------------
COMMAND INPUT ===>  st                                      SCROLL ===> CSR

DA     Active users                    INIT  Initiators
I      Input queue                     PR    Printers
O      Output queue                    PUN   Punches
H      Held output queue               RDR   Readers
ST     Status of jobs                  LINE  Lines
                                       NODE  Nodes
LOG    System log                      SO    Spool offload
SR     System requests                 SP    Spool volumes
MAS    Members in the MAS
JC     Job classes                     RM    Resource monitor
SE     Scheduling environments         CK    Health checker
RES    WLM resources
ENC    Enclaves                        ULOG  User session log
PS     Processes

END    Exit SDSF
```


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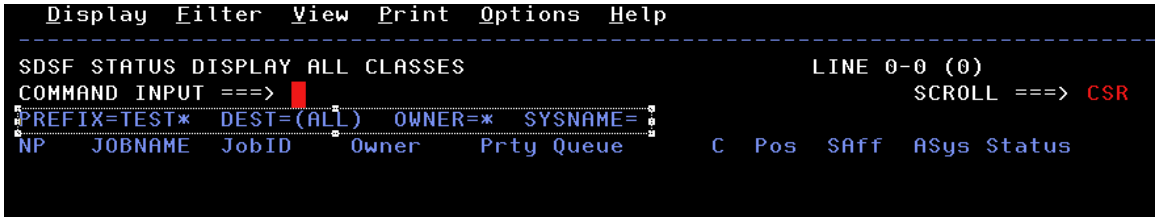
2. If you do not see your job in the status display, you may need to adjust the job selection criteria in order to see your job's status. Enter the command SET DISPLAY ON.



3. The SET DISPLAY ON command causes the system to display (highlight) the current selection settings. PREFIX=TEST* directs the system to display all jobs with a job name beginning with the word TEST. OWNER=* directs the system to display jobs for any owner.

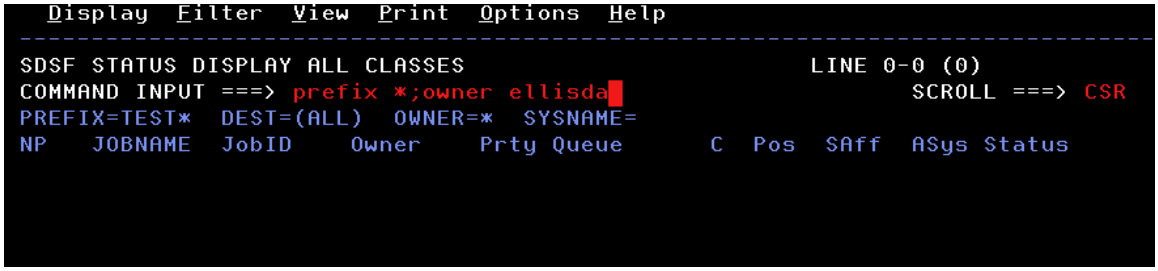
4. To display only your jobs (this may be the default setup on your own z/OS system), enter the commands:

   OWNER *userid*
   (where *userid* is your TSO user ID)

   and

   PREFIX *

   Or, you can enter them both on a single line, separating them with a semi-colon.



5. Press **Enter**.

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```
 Display  Filter  View  Print  Options  Help
--------------------------------------------------------------------------------
SDSF STATUS DISPLAY ALL CLASSES                          LINE 1-2 (2)
COMMAND INPUT ===>                                         SCROLL ===> CSR
PREFIX=*  DEST=(ALL)  OWNER=ELLISDA  SYSNAME=
NP   JOBNAME  JobID    Owner    Prty Queue      C  Pos  SAff  ASys Status
     ELLISDA  TSU06117 ELLISDA    15 EXECUTION           MVS1  MVS1
     COBOL1   JOB06126 ELLISDA     1 PRINT      A    18
```

6. To display all the output from the job in a single stream, enter the letter S next to it; or, you can view the individual parts by entering a question mark (?) next to each part.

```
 Display  Filter  View  Print  Options  Help
--------------------------------------------------------------------------------
SDSF STATUS DISPLAY ALL CLASSES                      DATA SET DISPLAYED
COMMAND INPUT ===>                                         SCROLL ===> CSR
PREFIX=*  DEST=(ALL)  OWNER=ELLISDA  SYSNAME=
NP   JOBNAME  JobID    Owner    Prty Queue      C  Pos  SAff  ASys Status
     ELLISDA  TSU06117 ELLISDA    15 EXECUTION           MVS1  MVS1
?    COBOL1   JOB06126 ELLISDA     1 PRINT      A    18
```

7. The system displays the output. (Your output may vary from the example below depending upon your system).

```
 Display  Filter  View  Print  Options  Help
--------------------------------------------------------------------------------
SDSF JOB DATA SET DISPLAY - JOB COBOL1   (JOB06126)    LINE 1-7 (7)
COMMAND INPUT ===>                                         SCROLL ===> CSR
PREFIX=*  DEST=(ALL)  OWNER=ELLISDA  SYSNAME=
NP   DDNAME   StepName ProcStep DSID Owner    C Dest              Rec-Cnt Page
     JESJCLIN                    1 ELLISDA  X                        17
     JESMSGLG JES2               2 ELLISDA  X LOCAL                  22
     JESJCL   JES2               3 ELLISDA  X LOCAL                  78
     JESYSMSG JES2               4 ELLISDA  X LOCAL                  64
     $INTTEXT JES2               5 ELLISDA  A                        23
     SYSPRINT STEP1    COBOL   101 ELLISDA  X LOCAL                 115
     SYSPRINT STEP1    LKED    102 ELLISDA  X LOCAL                 129
```

8. Enter the letter S next to each part of the output to view it.

```
 Display  Filter  View  Print  Options  Help
--------------------------------------------------------------------------------
SDSF JOB DATA SET DISPLAY - JOB COBOL1   (JOB06126)     DATA SET DISPLAYED
COMMAND INPUT ===>                                         SCROLL ===> CSR
PREFIX=*  DEST=(ALL)  OWNER=ELLISDA  SYSNAME=
NP   DDNAME   StepName ProcStep DSID Owner    C Dest              Rec-Cnt Page
     JESJCLIN                    1 ELLISDA  X                        17
s    JESMSGLG JES2               2 ELLISDA  X LOCAL                  22
     JESJCL   JES2               3 ELLISDA  X LOCAL                  78
     JESYSMSG JES2               4 ELLISDA  X LOCAL                  64
     $INTTEXT JES2               5 ELLISDA  A                        23
     SYSPRINT STEP1    COBOL   101 ELLISDA  X LOCAL                 115
     SYSPRINT STEP1    LKED    102 ELLISDA  X LOCAL                 129
```


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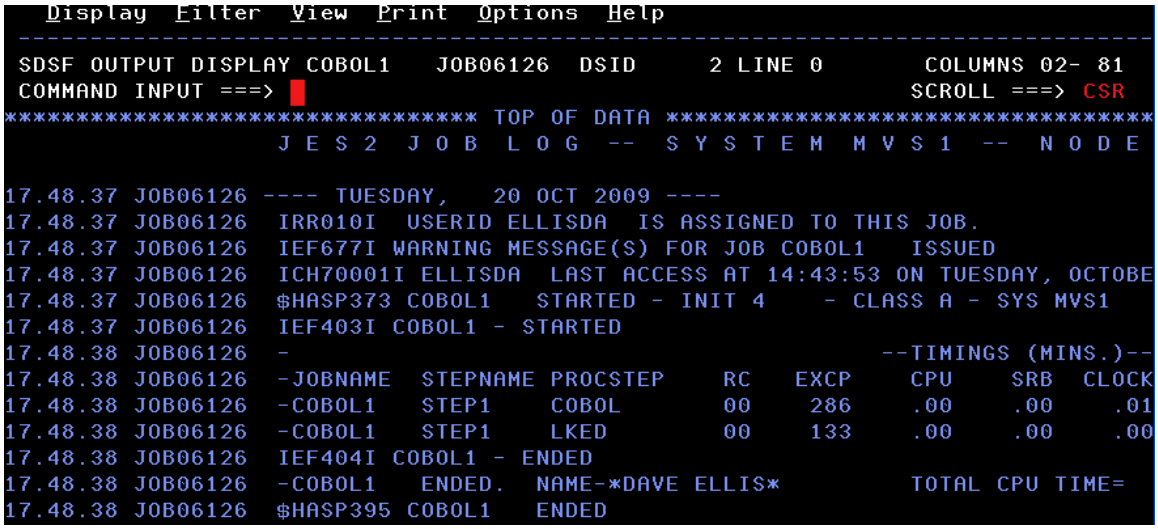
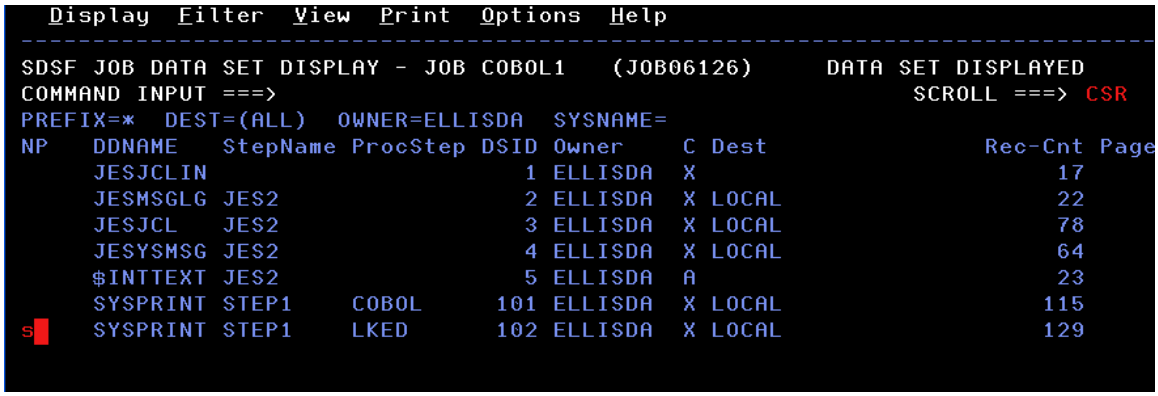
9. The JESMSGLG (JES Message Log) output contains Job Entry Subsystem (JES) messages and may also contain information about the completion code for each job step (this information is provided via an installation exit and not all systems may show this information in the JES message log).



In this example, you can see that both steps of the job (the compile and the link edit) ended with return code zero (under the RC heading).

10. Press **F3** to return to the list of job output parts. The SYSPRINT output from the LKED step contains the linkage editor (binder) output.



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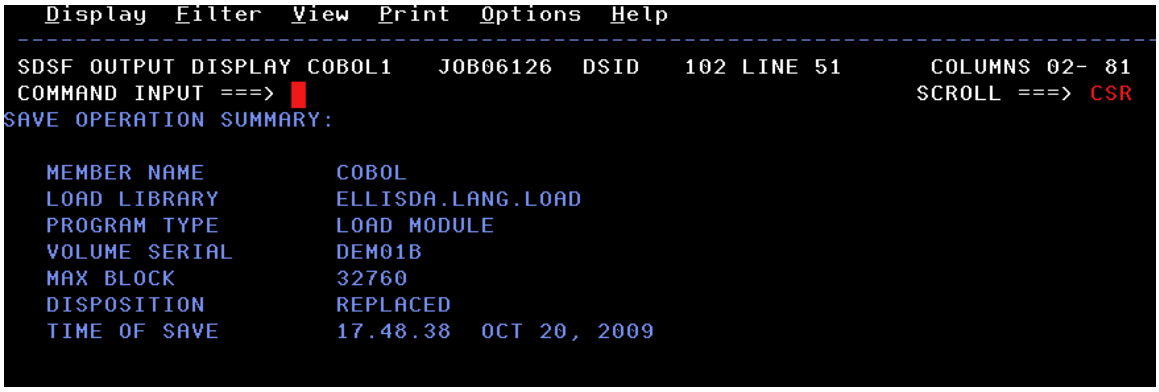
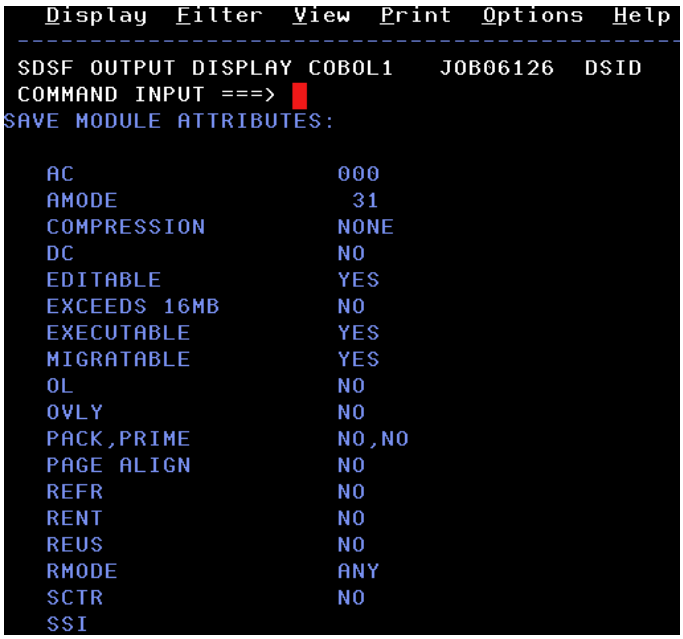
11. In the output, the system provides information such as where the load module was saved.



12. In this example, the load module was saved as member name COBOL in load library ELLISDA.LANG.LOAD. The module attributes Section lists information about the module.



13. AMODE and RMODE refer to where in storage the program will reside (above or below the 16 MB line, RMODE) and in which addressing mode it will initially execute (31 bit or 24 bit, AMODE).

    The AC indicator shows if this program is flagged as being Authorized Program Facility (APF) authorized. In order to execute as an APF authorized program, the load library where it resides must also be APF authorized.

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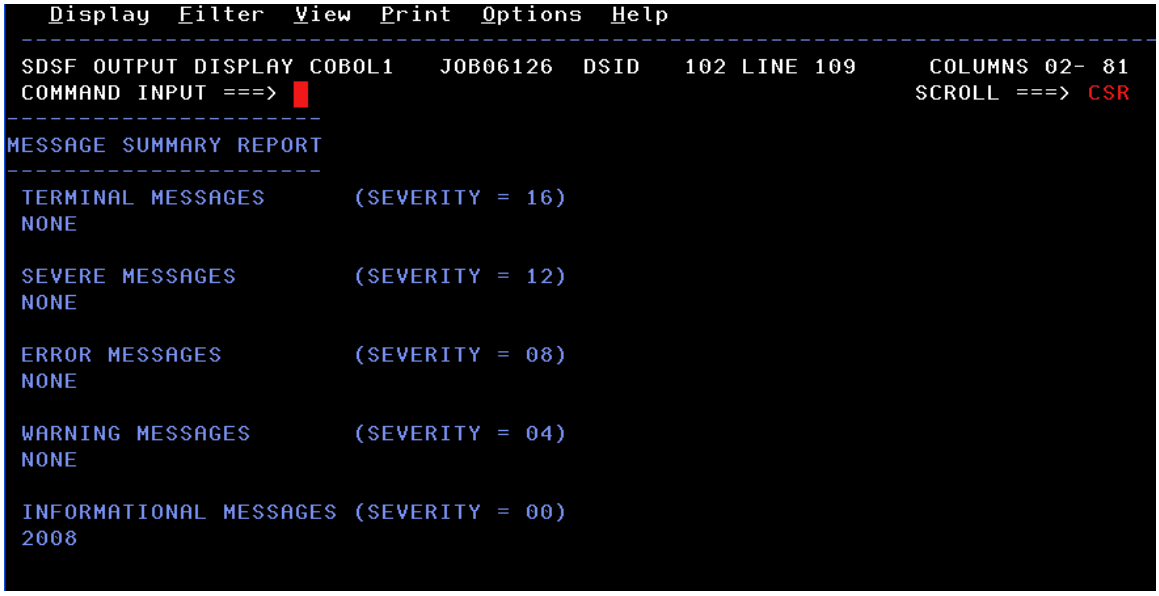
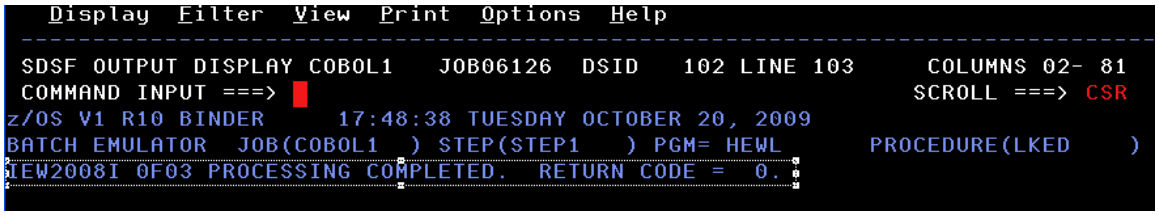
Most application programs do not need to be APF authorized.
The EXECUTABLE flag shows that this program is indeed executable. If the link edit/binding operation contained an error, such as a required module not being found, then the program may have been flagged as not executable.

14. The message summary section lists the message numbers by severity of all the messages issued by the linkage editor/binder.



15. To quickly find any error messages in the listing, search for the message number using the find (F) command in SDSF. The messages are prefixed by IEW. In this example, there is an IEW2008 message, which is simply an informational message to show that the link edit/binding operation was successful.



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VII. Module - z/OS System Programming

A. SMF

Set up a job to dump the current contents of the active SMF data set to a file on DASD. Do the following:

1. On your system, determine the active SMF data sets with records.

2. Create a job that will copy the active SMF data set contents to a DASD file. The job should copy only SMF record types 30 and 110 for the current day to the output data set.

3. Submit the job. Upon successful completion, determine the number of records written.

4. View the output data set records.

With your Technical Knowledge Partner:

1. Use SDSF /D SMF to determine which active data sets have records.

2. To set up the output data set, the SMF manual may need to be referenced to determine data set characteristics and defaults and for information on the dump parameters. The job should look similar to the following:

```
//STEPSMF  EXEC PGM=IFASMFDP
//INDD1    DD   DISP=SHR,DSN=SYS1.DEMOZOS1.MANA
//OUTDD1   DD
DSN=ZOSINTRO.DUMPSMF.DEMOZOS1.TESTOUT,
//        DISP=(NEW,CATLG),
//        UNIT=3390,SPACE=(CYL,(1,5))
//SYSPRINT DD   SYSOUT=A
//SYSIN    DD   *
     INDD(INDD1,OPTIONS(DUMP))
     OUTDD(OUTDD1,TYPE(30,110))
      DATE(2009317,2009317)
/*
//
```

In the above sample JCL, since DCB parameters were not specified, the

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default IFASMFDP job values were used. Note that depending on which records are being dumped, DCB parameters can be specified that may make the handling of the output data set records easier to manage for further processing.

3. In SDSF, view the SMF Summary Activity Report, which should be produced in the SYSPRINT (in the above example job) output. This report indicates information about the SMF records, including records read and written.

4. SMF records have a variable logical record length (lrecl) of up to 32767 bytes. The system records, including the type 30 records, can have a length of up to 32756 bytes. Since ISPF does not allow viewing or browsing of variable record length data sets with maximum lrecl greater than 32752 bytes, an IDCAMs print job or TSO command needs to be used to view the output data set, such as:

   tso print indataset('zosintro.dumpsmf.demozos1.tetsout') count(nnn)

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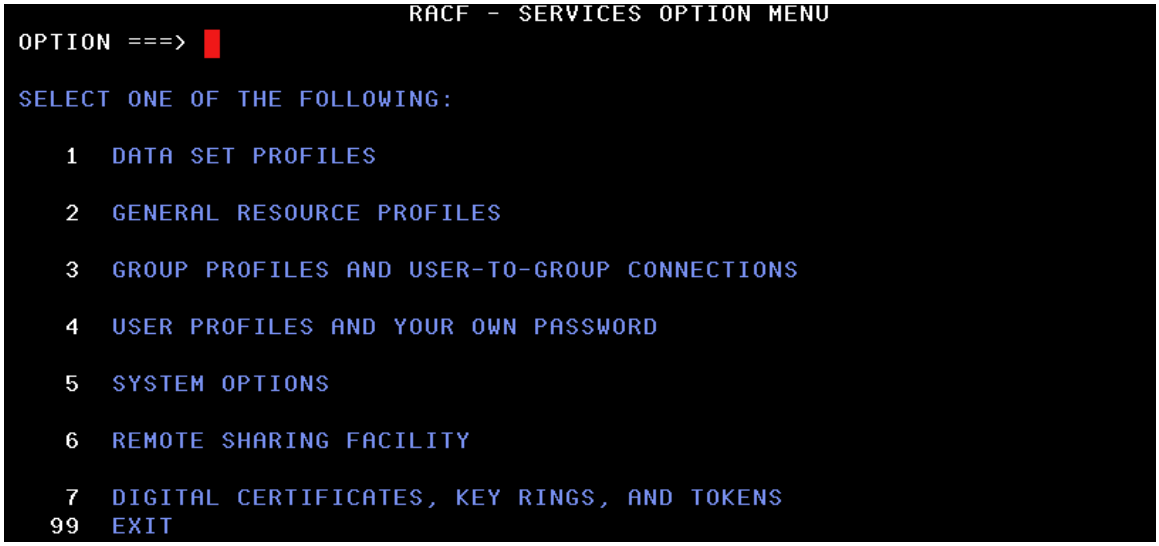
VIII. Module - Security on z/OS

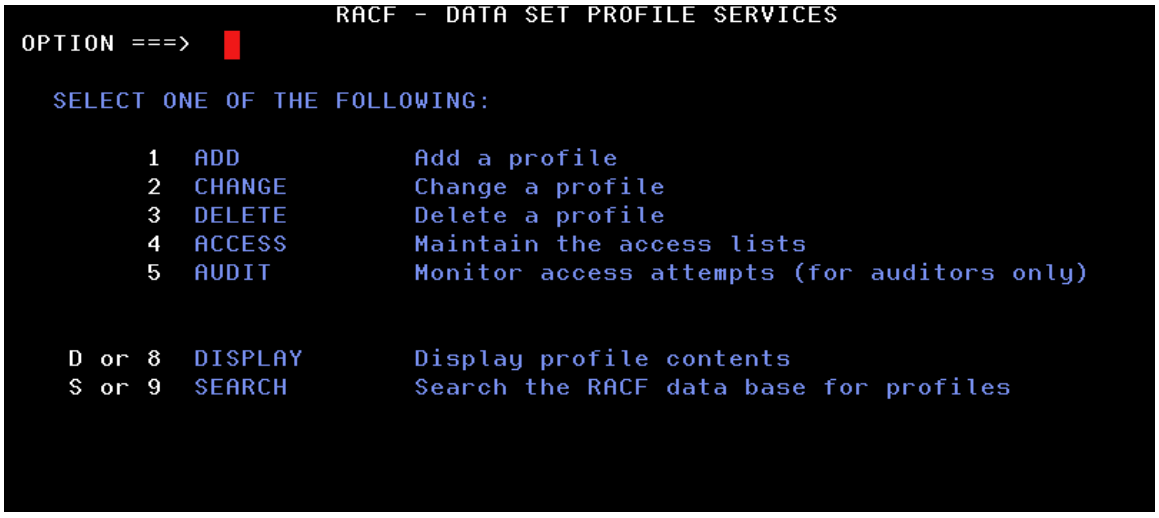
A. Controlling Data Set Access with RACF

In this exercise, you will explore how to grant and deny access to your data sets using RACF profiles.

1. From the RACF – SERVICES OPTION MENU screen, select option 1, **DATA SET PROFILES**.



2. The RACF - DATA SET PROFILE SERVICES menu screen opens.



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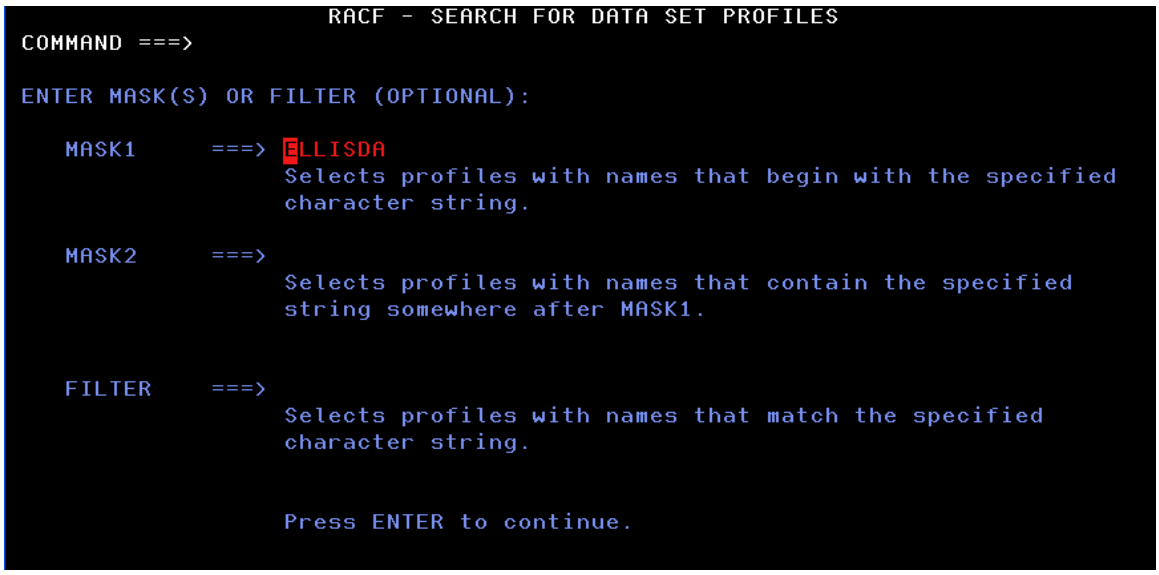
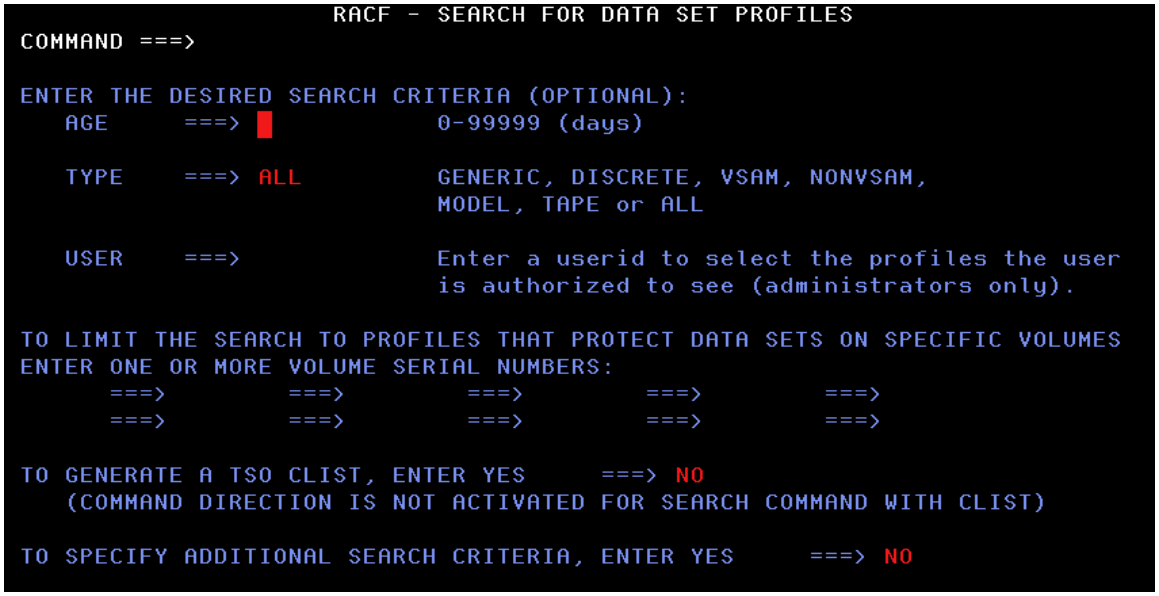
3. To list your RACF profiles, select option S (Search) and press **Enter**.

4. Enter your user ID in the **MASK1** field.



5. Enter ALL in the **TYPE** field and NO in the **TO GENERATE A TSO CLIST** and **TO SPECIFY ADDITIONAL SEARCH CRITERIA** fields.



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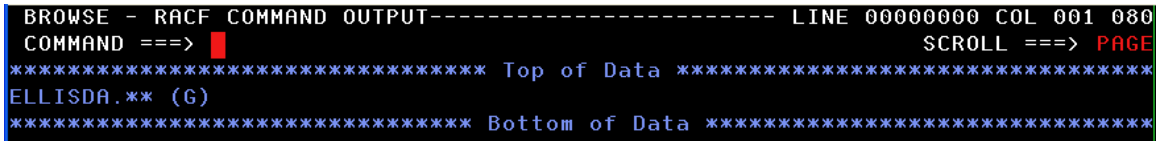
6. The system lists all the profiles starting with your user ID.



7. In this example, there is only one generic profile that covers all data sets. To display the data sets, copy (using the mouse) the profile (ELLISDA.** in this example); then, press **F3** until you return to the RACF - DATA SET PROFILE SERVICES menu and select option D to display the profiles.

8. To display the data set profiles, enter the letter D at the **OPTION** prompt.

9. Paste (or enter) the profile name into the **PROFILE NAME** field.

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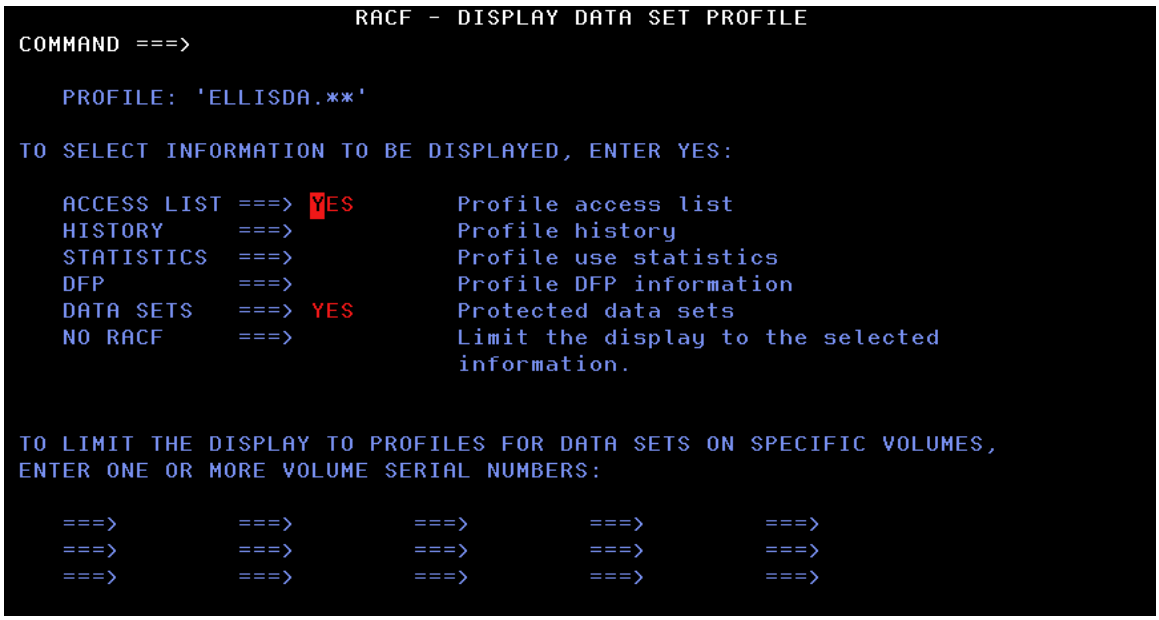
10. Enter YES in the **ACCESS LIST** and **DATA SETS** fields:



11. Press **Enter**. The resulting output shows you who has access to your data sets and which data sets are protected by the profile.

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```
             SECURITY LEVEL
----------------------------------------
NO SECURITY LEVEL

CATEGORIES
----------
NO CATEGORIES

SECLABEL
--------
NO SECLABEL

   ID     ACCESS
--------  -------
NO ENTRIES IN STANDARD ACCESS LIST

   ID     ACCESS   CLASS                ENTITY NAME
-------- ------- -------- ----------------------------------------------------
NO ENTRIES IN CONDITIONAL ACCESS LIST

CATALOGUED DATA SETS AFFECTED BY PROFILE CHANGE
ELLISDA.LANG.CNTL
ELLISDA.LANG.LOAD
ELLISDA.LANG.OBJ
ELLISDA.LANG.PROCLIB
ELLISDA.LANG.SOURCE
ELLISDA.SPF.ISPPROF
ELLISDA.SPFLOG1.LIST
ELLISDA.SPFTEMP0.CNTL
ELLISDA.SPFTEMP2.CNTL
****************************** Bottom of Data ******************************
```

12. The Universal Access should be NONE (to conform to IBM security guidelines).

    Your access should be ALTER (everything), which means you can create, delete, edit, and read all data sets with an HLQ of your user ID.

    The sections NO ENTRIES IN STANDARD ACCESS LIST and NO ENTRIES IN CONDITIONAL ACCESS LIST in this example indicate that no one else is authorized to access these data sets.

B. Testing Access to Your Data Sets

1. Verify that no one else can access your data sets. Ask another user in your group to try to browse one of your data sets. They should receive a not authorized error.

2. Grant that user access to ONE of your data sets.

   The generic profile that you listed above protects ALL of this user's data sets (because there are no other profiles). If you grant access to this

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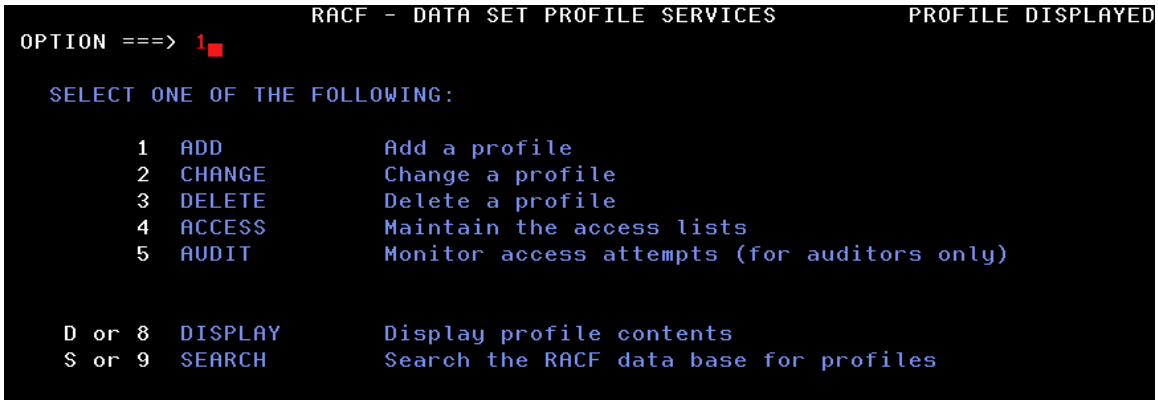
generic profile to another user, that user could access ALL of this user's data sets, which is not desirable.
Create a profile that will protect just the data sets for which you want to grant access, and then give this other user access to that profile.

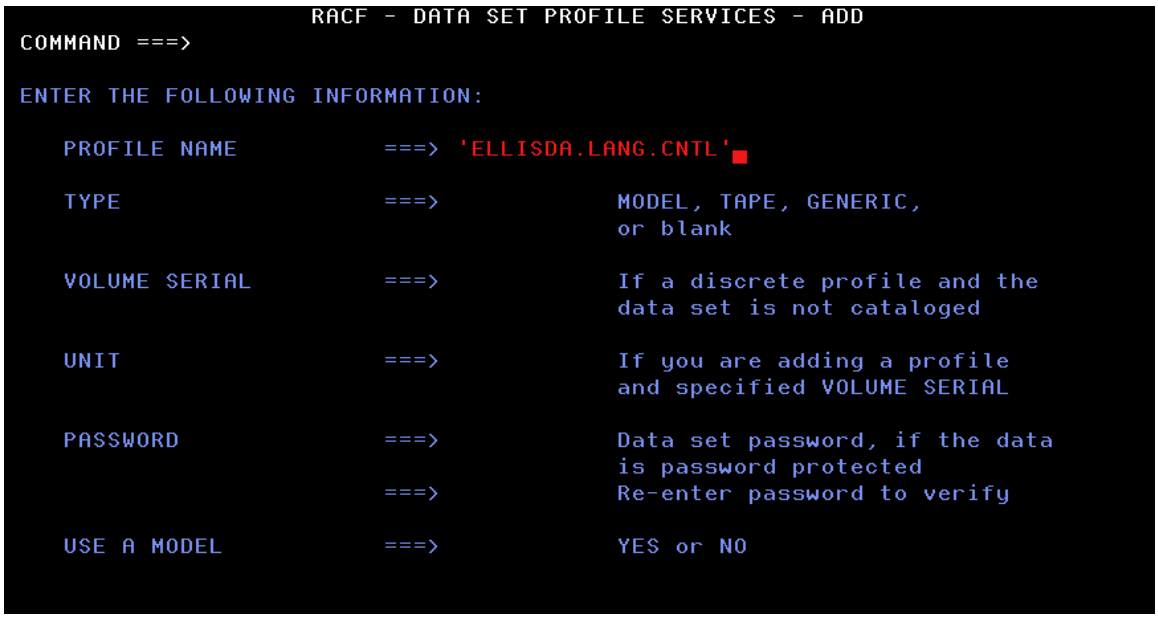
C. Protecting a Specific Data Set

In this exercise, you are going to grant another user specific access to the *userid*.LANG.CNTL data set.

1. From the RACF - DATA SET PROFILE SERVICES menu screen, select option 1, **ADD**.



2. In the **PROFILE NAME** field, enter the full data set name, enclosed in quotation marks.



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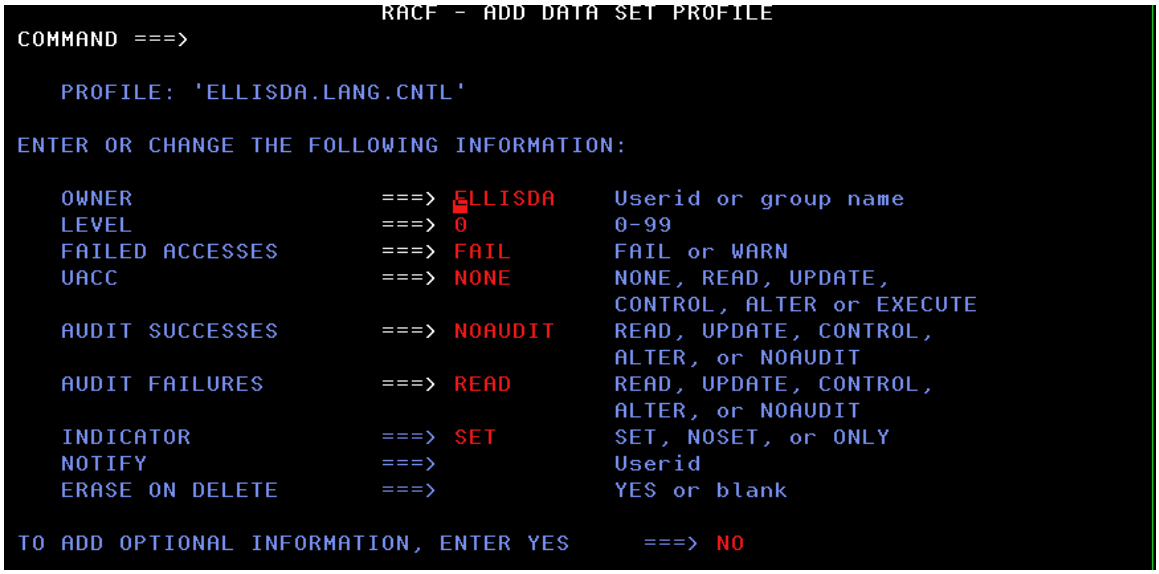
3. Press **Enter**. On the following screen, enter the default settings for the profile. You should enter NONE in the **UACC** (Universal ACCess) field to ensure that the default protection for the profile is to deny access to the data set it protects (per IBM internal guidelines).



4. If you want to be notified of unauthorized attempts to access the data set protected by this profile through an operator message to your TSO/ISPF session, enter your user ID in the **NOTIFY** field.

5. You can repeat the Display Data Set Profiles step above using this specific profile name in place of the generic one previously used to list the data set(s) protected by this profile. There should only be one data set now.

6. Ask the other user to try to access the data set again. They should still receive a security violation. If you entered your user ID in the **NOTIFY** field, then you will receive a message the next time that you press **Enter**.

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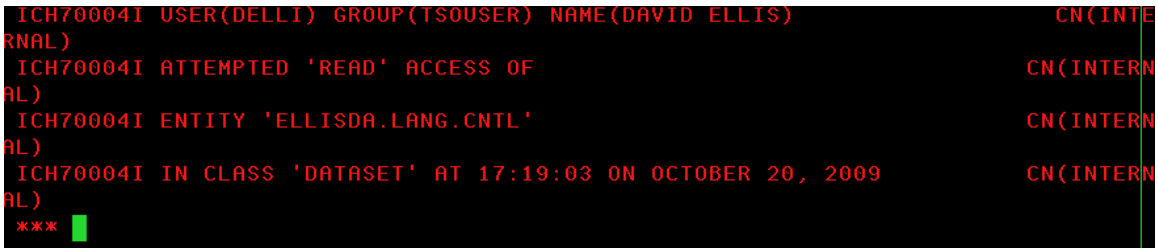

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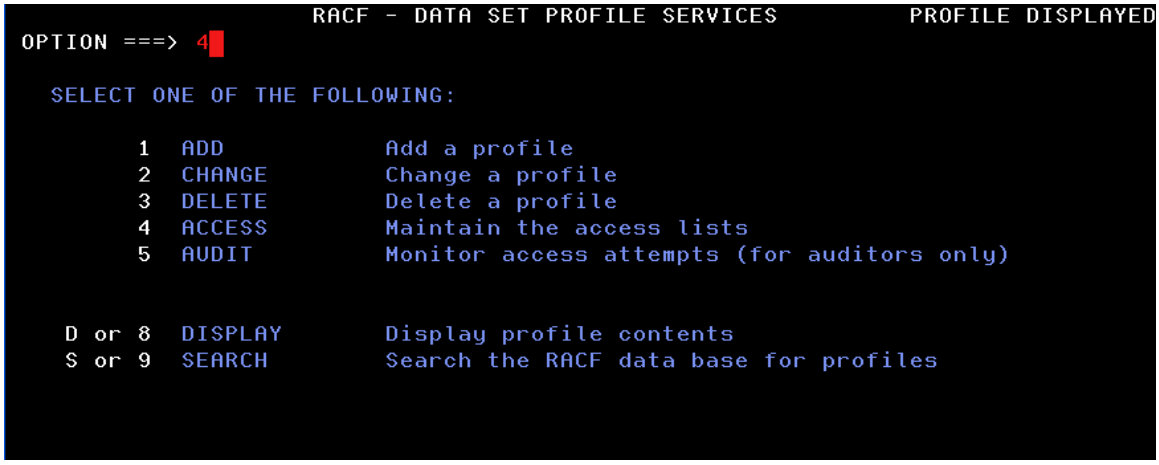
D. Granting the User Access to the Profile

You give users (and groups) access to the resources protected by a profile by granting them access to the profile that protects them.

1. From the RACF - DATA SET PROFILES menu screen, select option 4, **ACCESS.**



2. Ensure the **PROFILE NAME** field contains the specific profile name enclosed in quotation marks.

3. Press **Enter** to go to next menu screen.

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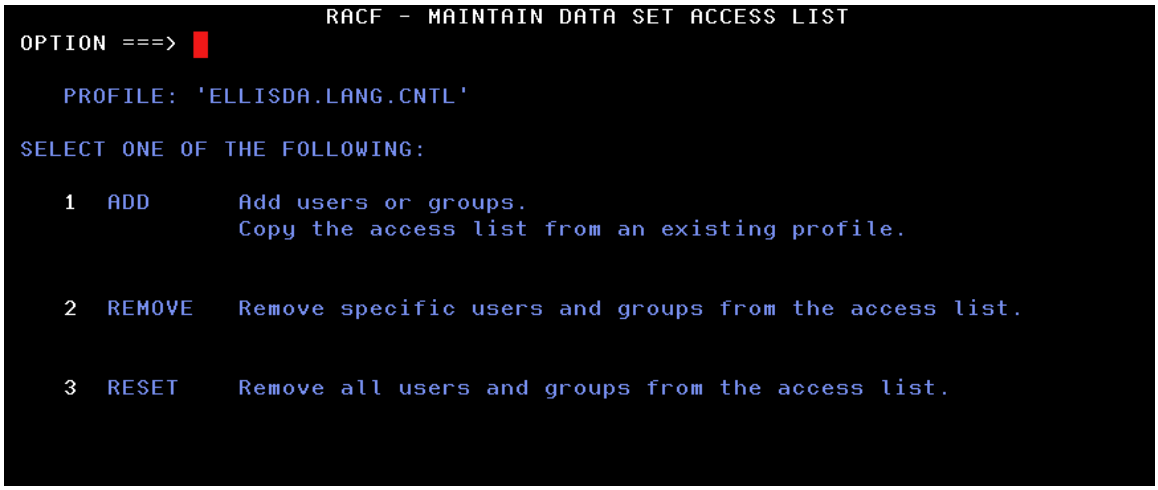
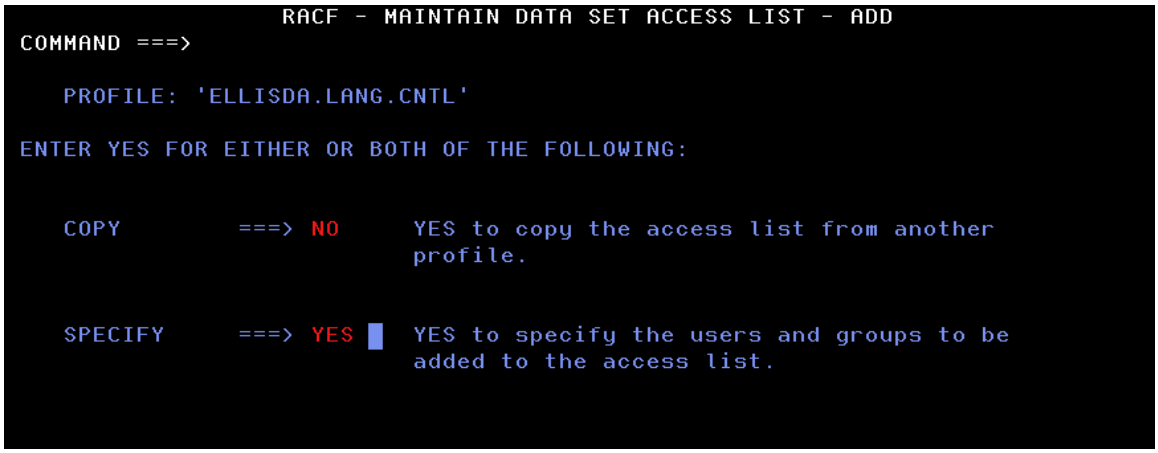


4. Enter 1, **Add,** and press **Enter**.
5. In the **SPECIFY** field, enter YES.



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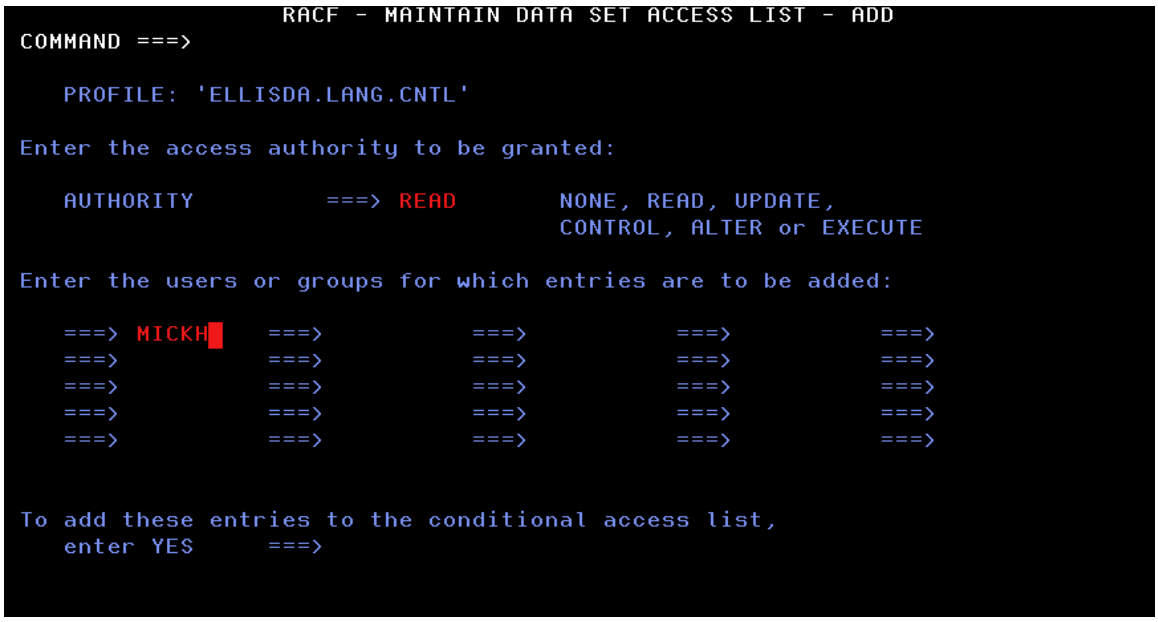
6. Press **Enter**.



7. In the **AUTHORITY** field, enter READ to enable the specified user to read the data set but not to modify its contents or to delete or rename the data set.

Testing read access to the data set

1. Ask the user to whom you granted access to try to browse the data set again. They should now be able to do so.

Testing update access to the data set

1. Ask the user to whom you granted access to try to edit and save one of the members in the data set. (Select the member and enter SAVE on the command line). They should receive an “Authorization failed” message.

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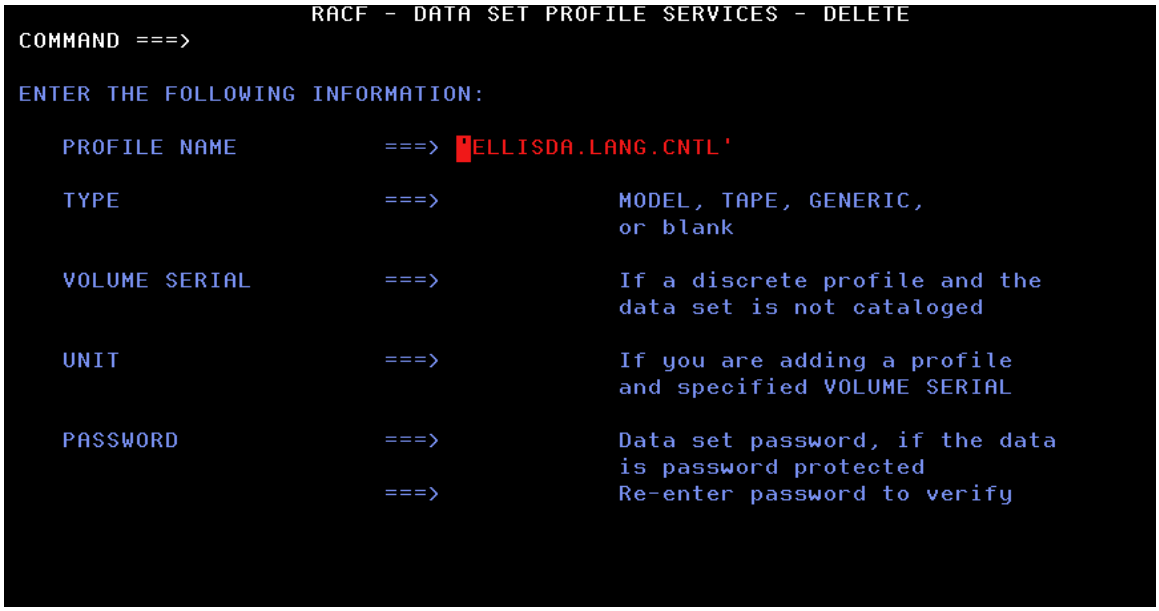
E. Deleting the Data Set Profile

1. On the RACF - DATA SET PROFILE SERVICES menu screen, select option 3, **DELETE**, and press **Enter**.

2. Enter the profile name in quotes in the **PROFILE NAME** field.



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3. Press **Enter**.

4. Leave the setting as SET (press **F1**, Help, to read about SET and NOSET) and press **Enter** to delete the profile.

Testing access to the data set

1. Ask the user to whom you granted access to try to browse the data set again. They should now NOT be able to do so.

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