

VANGUARD SECURITY & COMPLIANCE

Welcome to Charlotte!



ISPF for the Security Professional

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ESM07

Agenda - Why are we Here?

- **As security professionals, ISPF is one of the mainframe tools that we use to get our jobs done. We use it to:**
 - Submit batch jobs
 - Edit list of RACF and other commands
 - Process the output of RACF utilities and RACF commands
 - Browse/edit system configuration data sets and
 - Numerous other tasks
- **History (and the fabulous VSC-2018 ISPF “Birds of a Feather” session) has taught that there are ISPF features that are being missed by many of us**
- **These are some of the tips and tools that were mentioned there**
- ***This is an interactive session! Share your tips!***
- **This session assumes that you are already familiar with the basics of ISPF (specifying data set and file names, entering data, finding and replacing data)**

Agenda (We'll get to as much as we can...)

- **Editing tips/tools**

- Stacking commands
- Hex Display (HX)
- Columnar Data
 - COLS
 - SHIFT using “)” and “>”
- PROFILE
- RECOVER
- CUT/CUT DISPLAY/CUT APPEND
- Text flow (TF)
- Finding data (SRCHFOR, FIND)
- Labels
- SWAPBAR

- **Data location tools**

- “Projects”
- DSLISTS, REFLISTS
- z/OS UNIX file list (3.17)

- **Utilities**

- COMPARE
- Setting member stats (G)
- PDSE Member generation
- SARED
- ZSTART

- **ISRDDN**

- **ISRFIND**

- **ISPFEDIT in REXXs**

EDITING TOOLS

Editing Tools: FINDING and EXCLUDING Data

- It's often convenient to exclude large amounts of data to allow us to focus on the data that we care about
- The **EXCLUDE** command allow specific data to be excluded
 - “EXCLUDE SUCCESS” excludes the **first record** which contains the string “SUCCESS” **anywhere**
 - “EXCLUDE SUCCESS 10” excludes the first record where the string “SUCCESS occurs **starting in column 10.**
 - “EXCLUDE SUCCESS 10 ALL” **excludes all records** which have the string “SUCCESS” starting in **column one**
- The **DELETE** command allows records which have been included or excluded to be deleted
 - DELETE ALL X deletes all of the records which are excluded
 - DELETE ALL NX deletes all of the records which are not excluded

Editing Tools: Stacking Commands

- **ISPF allows you to stack commands, which can be very convenient when editing/viewing data**
 - Default separator character is a “;”
- Example: Editing the output of IRRADU00 searching for specific records. To find all of the RVAR Y commands, one would need to:
 - Exclude all of the records from the view
 - “exclude all”
 - Find all of the records which have the string “RVAR Y” starting in column 1
 - “find RVAR Y 1 all”
 - Delete all of the records which did not meet that criteria (that is, do not have RVAR Y starting in column 1)
 - “delete all excluded”
 - Stacked together, the command would be:
 - “exclude all; find RVAR Y 1 all; del all excluded “ , which can be abbreviated to:
 - “ex all; find RVAR Y 1 all; del all x”

Editing Tools: Stacking Commands...

- The stacked commands are placed in the command line

```
Command ==> ex all;f RVARY 1 all; del all x                               Scroll ==> HALF
***** ***** Top of Data *****
==MSG> -Warning- The UNDO command is not available until you change
==MSG> your edit profile using the command RECOVERY ON.
000001 JOBINIT SUCCESS 00:31:23 2011-02-25 IM13 +MASTER+ *
000002 JOBINIT SUCCESS 00:36:36 2011-02-25 IM13 IBMUSER SYS1
000003 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000004 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000005 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000006 JOBINIT TERM 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000007 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000008 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000009 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000010 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000011 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000012 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000013 JOBINIT SUCCESS 00:36:38 2011-02-25 IM13 IBMUSER SYS1
000014 JOBINIT SUCCESS 00:36:39 2011-02-25 IM13 IBMUSER SYS1
000015 JOBINIT SUCCESS 00:37:29 2011-02-25 IM13 IBMUSER SYS1
000016 JOBINIT SUCCESS 00:37:30 2011-02-25 IM13 IBMUSER SYS1F13=Help
F14=Split F15=End F16=Return F17=Rfind F18=Rchange
F19=Up F20=Down F21=Swap F22=Left F23=Right F24=Cretriev
```

Editing Tools: Stacking Commands...

- ... and the result is:

```
EDIT          MARKN.SAMPLE.IRRADU00          878 lines deleted
Command ==>          Scroll ==> HALF
***** ***** Top of Data *****
000001 RVARY      SUCCESS 01:12:01 2011-02-25 IM13 NO  NO  NO  MARKN  SYS1
000002 RVARY      SUCCESS 01:13:08 2011-02-25 IM13 NO  NO  NO  MARKN  SYS1
000003 RVARY      SUCCESS 01:18:50 2011-02-25 IM13 NO  NO  NO  MARKN  SYS1
000004 RVARY      SUCCESS 01:19:55 2011-02-25 IM13 NO  NO  NO  IBMUSER SYS1
***** ***** Bottom of Data *****
```


Editing Tools: Columnar Data

- **Some applications (IRRDBU00, IRRADU00, JCL, the IBM z/OS Assembler) are sensitive to the specific column in which data appears**
 - Specific column offsets for IRRDBU00 and IRRADU00 data
 - Continuation columns in JCL and assembler and required places to start the continuation
- **Sometimes we need to find data in specific columns or move data into specific columns**

Editing Tools: Columnar Data – The COLS Command

- The COLS command creates a display line makes it easy to see in what columns data is located
 - can be specified multiple times in a data set and scrolls with the data, even though it is not data

```
EDIT          MARKN.TEMP.IRRADU0          Columns 00001 00072
Command ===>          Scroll ===> HALF
***** ***** Top of Data *****
cols01 SETROPTS INSAUTH 16:51:27 2019-08-01 IM13 YES NO NO RACF SYS1
000002 ALTUSER INSAUTH 16:51:30 2019-08-01 IM13 YES NO NO RACF SYS1
000003 ALTUSER INSAUTH 16:51:32 2019-08-01 IM13 YES NO NO RACF SYS1
000004 JOBINIT PWDEXPR 16:54:21 2019-08-01 IM13 YES NO NO MARKN SYS1
000005 ACCESS SUCCESS 16:54:27 2019-08-01 IM13 NO NO NO MARKN SYS1
000006 ACCESS SUCCESS 16:54:27 2019-08-01 IM13 NO NO NO MARKN SYS1
000007 ACCESS SUCCESS 16:58:32 2019-08-01 IM13 NO NO NO MARKN SYS1
000008 ACCESS SUCCESS 16:58:32 2019-08-01 IM13 NO NO NO MARKN SYS1
000009 ACCESS SUCCESS 16:58:32 2019-08-01 IM13 NO NO NO MARKN SYS1
000010 ACCESS SUCCESS 16:58:33 2019-08-01 IM13 NO NO NO MARKN SYS1
000011 ACCESS SUCCESS 16:58:33 2019-08-01 IM13 NO NO NO MARKN SYS1
F13=Help      F14=Split      F15=End        F16=Return     F17=Rfind      F18=Rchange
F19=Up        F20=Down       F21=Swap       F22=Left       F23=Right      F24=Cretriev
```

Editing Tools: Columnar Data – The COLS Command...

- The COLS command places the last digit of the column number in the line that you specified the COLS command
 - You need to look at the “Columns nnnnn nnnnn” in the upper right to figure out the column number
 - The column information is not saved with your data

```
EDIT          MARKN.TEMP.IRRADU00          Columns 00001 00072
Command ===>          Scroll ===> HALF
***** ***** Top of Data *****
=COLS>  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7--
000001  SETROPTS  INSAUTH  16:51:27  2019-08-01  IM13  YES  NO  NO  RACF  SYS1
000002  ALTUSER   INSAUTH  16:51:30  2019-08-01  IM13  YES  NO  NO  RACF  SYS1
000003  ALTUSER   INSAUTH  16:51:32  2019-08-01  IM13  YES  NO  NO  RACF  SYS1
000004  JOBINIT   PWDEXPR  16:54:21  2019-08-01  IM13  YES  NO  NO  MARKN  SYS1
000005  ACCESS     SUCCESS  16:54:27  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
000006  ACCESS     SUCCESS  16:54:27  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
000007  ACCESS     SUCCESS  16:58:32  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
000008  ACCESS     SUCCESS  16:58:32  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
000009  ACCESS     SUCCESS  16:58:32  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
000010  ACCESS     SUCCESS  16:58:33  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
000011  ACCESS     SUCCESS  16:58:33  2019-08-01  IM13  NO   NO  NO  MARKN  SYS1
F13=Help      F14=Split      F15=End        F16=Return     F17=Rfind      F18=Rchange
F19=Up        F20=Down       F21=Swap       F22=Left       F23=Right      F24=Cretriev
```

Editing Tools: Columnar Data – Find in Specific Cols

- **Let's try an real-world example: Get a list of all of the IRRDBU00 records which define a user ID and sort them by the date of the last logon.**
 - First, let's exclude all the rows

```
EDIT          MARKN.SAMPLE2.IRRDBU00          Columns 00001 00072
Command ==> x all                               Scroll ==> HALF
***** Top of Data *****
=COLS>  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7--
000001 0102 ANDREWS  PATTY    USE
000002 0102 ANDREWS  MAXINE  USE
000003 0102 ANDREWS  LAVERNE USE
000004 0100 ANDREWS  SYS1    2011-02-25 MARKN  NONE  NO
000005 0100 DEFAULTG SYS1    2011-02-25 MARKN  NONE  NO
000006 0102 GPAUTH  UAUTH$CO CONNECT
000007 0102 GPAUTH  UAUTH$CR CREATE
000008 0102 GPAUTH  UAUTH$JO JOIN
000009 0102 GPAUTH  UAUTH$US USE
000010 0100 GPAUTH  SYS1    2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHCO UAUTH$CO CONNECT
000012 0100 GPAUTHCO SYS1    2011-02-25 MARKN  NONE  NO
000013 0102 GPAUTHCR UAUTH$CR CREATE
000014 0100 GPAUTHCR SYS1    2011-02-25 MARKN  NONE  NO
000015 0102 GPAUTHJO UAUTH$JO JOIN
F13=Help    F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up      F20=Down     F21=Swap     F22=Left     F23=Right    F24=Cretriev
```

Editing Tools: Columnar Data – Find in Specific Cols...

- **Sometimes you need to find an occurrence of a string only when it is in a specific column or range of columns**
 - can be specified multiple times in a data set and scrolls with the data, even though it is not data

```
EDIT          MARKN.SAMPLE2.IRRDBU00          All lines excluded
Command ===>          Scroll ===> HALF
***** ***** Top of Data *****
- - - - - 4494 Line(s) not Displayed
***** ***** Bottom of Data *****
```

Editing Tools: Columnar Data – Find in Specific Cols...

- Now, let's find all of the records which have an '0200' ("User Basic Data") in column 1

```
EDIT          MARKN.SAMPLE2.IRRDBU00          All lines excluded
Command ==> F '0200' 1 ALL                      Scroll ==> HALF
***** ***** Top of Data *****
- - - - - 4494 Line(s) not Displayed
***** ***** Bottom of Data *****
```

Editing Tools: Columnar Data – Find in Specific Cols...

- Let's get rid of all the non-0200 records by deleting all of them. Since they are excluded, we can just delete all the excluded records

```
EDIT          MARKN.SAMPLE2.IRRDBU00          280 CHARS '0200'  
Command ==>  DELETED ALL X          Scroll ==> HALF  
***** ***** Top of Data *****  
- - - - - 1879 Line(s) not Displayed  
001879 0200 irrcerta 2010-01-20 irrcerta NO NO NO YES NO 000  
001880 0200 irrmulti 2010-01-20 irrmulti NO NO NO YES NO 000  
001881 0200 irrsitec 2010-01-20 irrsitec NO NO NO YES NO 000  
- - - - - 2 Line(s) not Displayed  
001884 0200 ADRIAN 2010-01-20 IBMUSER NO YES YES NO NO 030  
- - - - - 3 Line(s) not Displayed  
001888 0200 ANYTIME 2011-02-25 MARKN NO NO NO NO NO 254  
- - - - - 2 Line(s) not Displayed  
001891 0200 COMMAND1 2011-02-25 MARKN NO NO NO NO NO 254  
- - - - - 3 Line(s) not Displayed  
001895 0200 COMMAND2 2011-02-25 MARKN NO NO NO NO NO 254  
- - - - - 3 Line(s) not Displayed  
F13=Help      F14=Split      F15=End        F16=Return     F17=Rfind      F18=Rchange  
F19=Up        F20=Down       F21=Swap       F22=Left       F23=Right      F24=Cretriev
```

Editing Tools: Columnar Data – Find in Specific Cols...

- **What happened to our column headings?**
 - We deleted them! It will be easier if we add them back

```
EDIT          MARKN.SAMPLE2.IRRDBU00          4214 lines deleted
Command ==>          Scroll ==> HALF
***** ***** Top of Data *****
COLS01 0200 irrcerta 2010-01-20 irrcerta NO NO NO YES NO 000
000002 0200 irrmulti 2010-01-20 irrmulti NO NO NO YES NO 000
000003 0200 irrsitec 2010-01-20 irrsitec NO NO NO YES NO 000
000004 0200 ADRIAN 2010-01-20 IBMUSER NO YES YES NO NO 030
000005 0200 ANYTIME 2011-02-25 MARKN NO NO NO NO NO 254
000006 0200 COMMAND1 2011-02-25 MARKN NO NO NO NO NO 254
000007 0200 COMMAND2 2011-02-25 MARKN NO NO NO NO NO 254
000008 0200 DATE21ST 2059-07-03 MARKN NO NO NO NO NO 254
000009 0200 DATE22ND 2011-02-25 MARKN NO NO NO NO NO 254
000010 0200 DEFAULTTU 2011-02-25 MARKN NO NO NO NO NO 254
000011 0200 DSALT 2011-02-25 MARKN NO NO NO NO NO 254
F13=Help      F14=Split      F15=End        F16=Return     F17=Rfind      F18=Rchange
F19=Up        F20=Down       F21=Swap       F22=Left       F23=Right      F24=Cretriev
```


Editing Tools: Columnar Data – Find in Specific Cols...

```
EDIT          MARKN.SAMPLE2.IRRDBU00          Columns 00001 00072
Command ==>          Scroll ==> HALF
***** ***** Top of Data *****
=COLS>  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7--
000001 0200 irrcerta 2010-01-20 irrcerta NO    NO    NO    YES  NO    000
000002 0200 irrmulti 2010-01-20 irrmulti NO    NO    NO    YES  NO    000
000003 0200 irrsitec 2010-01-20 irrsitec NO    NO    NO    YES  NO    000
000004 0200 ADRIAN    2010-01-20 IBMUSER NO    YES  YES  NO    NO    030
000005 0200 ANYTIME   2011-02-25 MARKN  NO    NO    NO    NO    NO    254
000006 0200 COMMAND1 2011-02-25 MARKN  NO    NO    NO    NO    NO    254
000007 0200 COMMAND2 2011-02-25 MARKN  NO    NO    NO    NO    NO    254
000008 0200 DATE21ST 2059-07-03 MARKN  NO    NO    NO    NO    NO    254
000009 0200 DATE22ND 2011-02-25 MARKN  NO    NO    NO    NO    NO    254
000010 0200 DEFAULTU 2011-02-25 MARKN  NO    NO    NO    NO    NO    254
000011 0200 DSALT     2011-02-25 MARKN  NO    NO    NO    NO    NO    254
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down     F21=Swap     F22=Left     F23=Right    F24=Cretriev
```

- **Now, tab over (PF11) to find the column that you want. In our case, this is the USBD_LASTJOB_DATE field which starts in column 114**

Editing Tools: Columnar Data – Find in Specific Cols...

- Now, it's time to sort the data with the ISPF SORT command, which expects a starting column, an ending column and an ascending or descending indicator

```
EDIT          MARKN.SAMPLE2.IRRDBU00          Columns 00073 00144
Command ==>  SORT 114 123 d                   Scroll ==> HALF
***** Top of Data *****
=COLS>  --+---8---+---9---+---0---+---1---+---2---+---3---+---4---
000001  CERTAUTH Anchor
000002  Criteria Anchor
000003  SITE Anchor
000004  ##### SYS1                2010-01-20
000005  WHEN(TIME(ANYTIME)) SYS1    2011-02-25
000006  TSO LOGON COMMAND  SYS1    2011-02-25
000007  TSO LOGON COMMAND  SYS1    2011-02-25
000008  21ST CENTURY DATE   SYS1    2011-02-25
000009  22ND CENTURY DATE   SYS1    2011-02-25
000010  ##### SYS1                2011-02-25
000011  ##### SYS1                2011-02-25
F13=Help   F14=Split   F15=End     F16=Return  F17=Rfind   F18=Rchange
F19=Up     F20=Down    F21=Swap    F22=Left   F23=Right   F24=Cretriev
```

Editing Tools: Columnar Data – Find in Specific Cols...

- ...and here is the data!

```
EDIT          MARKN.SAMPLE2.IRRDBU00          Columns 00073 00144
Command ==>>          Scroll ==>> CSR
***** ***** Top of Data *****
=COLS>  --+----8----+----9----+----0----+----1----+----2----+----3----+----4----
000001  CERTAUTH Anchor
000002  Criteria Anchor
000003  SITE Anchor
000004  ##### SYS1          2010-01-20
000005  ##### SYS1          2010-01-20
000006  ##### SYS1          2010-11-24
000007  ##### SYS1          2010-11-24
000008  ##### SYS1          2010-12-17
000009  ##### SYS1          2011-01-10
000010  0 ##### SYS1      11:02:20 2011-01-10
000011  0 ##### SYS1      11:02:44 2011-01-10
000012  0 ##### SYS1      11:03:09 2011-01-10
000013  ##### SYS1      22:56:54 2011-02-08
000014  ##### SYS1          2011-02-08
000015  ##### SYS1          2011-02-11
000016  9 ##### SYS1      19:08:04 F13=Help   F14=Split
F15=End    F16=Return  F17=Rfind   F18=Rchange
F19=Up     F20=Down    F21=Swap    F22=Left    F23=Right   F24=Cretriev
```

Editing Tools: HEX Display

- Sometimes, you want to see the hexadecimal version of data

```
BROWSE      SYS1.LINKLIB(IEFBR14)                               Line 0000000000 Col 001 080
Command ==> hex on                                           Scroll ==> CSR
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8
***** Top of Data *****
.Ø.....IEFBR14 .....
Ø³.....
Ø..5695PMB01 .....Øá"
Ø..Ø..566896201 .....¤
Ø.h.....RSI53390780
.....
...Ú....
***** Bottom of Data *****
F13=Help      F14=Split      F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down      F21=Swap    F22=Left    F23=Right    F24=Cretriev
```

Editing Tools: HEX Display...

- ... and there it is in hex!
 - Along with the column bar in hex! 😊
- You can do the HEX command on the single lines (HX) or groups

```

BROWSE      SYS1.LINKLIB(IEFBR14)                               Line 0000000000 Col 001 080
Command ==>                               Scroll ==> CSR
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8
-----+-----F-----+-----F-----+-----F-----+-----F-----+-----F-----+-----F-----+-----F-----+-----F-----
-----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----7-----+-----8
-----+-----
***** Top of Data *****
-----
.Ø.....IEFBR14 .....
28000001CCCCDFF400000000
000001009562914000000004
-----
Ø³.....
8F0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
0A1000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
F19=Up      F20=Down    F21=Swap    F22=Left   F23=Right   F24=Cretriev
  
```

Editing Tools: PROFILE

- The PROFILE command shows the ISPF options for data sets which end with the same value (IRRBDU00 in this case)

```
EDIT          MARKN.SAMPLE.IRRDBU00          Columns 00001 00072
Command ==>  PROFILE                          Scroll ==> CSR
***** ***** Top of Data *****
000001 0102 ANDREWS  PATTY    USE
000002 0102 ANDREWS  MAXINE  USE
000003 0102 ANDREWS  LAVERNE USE
000004 0100 ANDREWS  SYS1    2011-02-25 MARKN  NONE  NO
000005 0100 DEFAULTG SYS1    2011-02-25 MARKN  NONE  NO
000006 0102 GPAUTH  UAUTH$CO CONNECT
000007 0102 GPAUTH  UAUTH$CR CREATE
000008 0102 GPAUTH  UAUTH$JO JOIN
000009 0102 GPAUTH  UAUTH$US USE
000010 0100 GPAUTH  SYS1    2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHCO UAUTH$CO CONNECT
000012 0100 GPAUTHCO SYS1    2011-02-25 MARKN  NONE  NO

F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap    F22=Left    F23=Right    F24=Cretriev
```

Editing Tools: PROFILE...

```
EDIT          MARKN.SAMPLE.IRRDBU00                      Columns 00001 00072
Command ==>>>                                         Scroll ==>> CSR
***** ***** Top of Data *****
=PROF> ....IRRDBU00 (VARIABLE - 12284)....RECOVERY ON....NUMBER OFF.....
=PROF> ....CAPS OFF....HEX OFF....NULLS ON STD....TABS OFF.....
=PROF> ....AUTOSAVE ON....AUTONUM OFF....AUTOLIST OFF....STATS OFF.....
=PROF> ....PROFILE UNLOCK....IMACRO NONE....PACK OFF....NOTE ON.....
=PROF> ....HILITE OFF CURSOR FIND.....
000001 0102 ANDREWS  PATTY    USE
000002 0102 ANDREWS  MAXINE  USE
000003 0102 ANDREWS  LAVERNE USE
000004 0100 ANDREWS  SYS1    2011-02-25 MARKN  NONE  NO
000005 0100 DEFAULTG SYS1    2011-02-25 MARKN  NONE  NO
000006 0102 GPAUTH   UAUTH$CO CONNECT
000007 0102 GPAUTH   UAUTH$CR CREATE
000008 0102 GPAUTH   UAUTH$JO JOIN
000009 0102 GPAUTH   UAUTH$US USE
000010 0100 GPAUTH   SYS1    2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHCO UAUTH$CO CONNECT
000012 0100 GPAUTHCO SYS1    2011-02-25 MARKN  NONE  NO

F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap     F22=Left     F23=Right    F24=Cretriev
```

Editing Tools: Member Generations

- **PDSE supports the concept of member generations, which are prior versions of a PDSE member**
- **Must be version 2 and be enabled by systems programmer**
- **Support from ISPF 3.4**

```
                                Data Set Information
Command ===>

Data Set Name . . . . : MARKN.TEMP.PDSE

General Data                                Current Allocation
Management class . . : MIGONLY              Allocated tracks . . : 6
Storage class . . . . : STANDARD            Allocated extents . . : 1
Volume serial . . . . : SL1111             Maximum dir. blocks : NOLIMIT
Device type . . . . . : 3390
Data class . . . . . : **None**
Organization . . . . . : PO
Record format . . . . : FB
Record length . . . . : 80
Block size . . . . . : 32720
1st extent tracks . . : 6
Secondary tracks . . . : 10
Data set name type : LIBRARY
Data set encryption : NO
Data set version . . : 2
Num of generations  : 10

                                Current Utilization
Used pages . . . . . : 60
% Utilized . . . . . : 83
Number of members . . : 7

                                Dates
Creation date . . . . : 2014/08/02
Referenced date . . . : 2019/09/27
Expiration date . . . : ***None***

F13=Help      F14=Split    F15=End       F16=Return    F17=Rfind     F18=Rchange
F19=Up        F20=Down     F21=Swap     F22=Left     F23=Right    F24=Cretriev
```


Editing Tools: Member Generations

- Create a new member, VSC2019 in this case

```
EDIT                                MARKN.TEMP.PDSE                                Row 0000001 of 0000007
Command ==> s vsc2019                                Scroll ==> HALF
_____ Name      Prompt      Size   Created      Changed      ID
_____ JCL1        _____  21    2018/09/12   2018/09/12 12:18:12   BRUCE
_____ JCL2        _____  21    2018/09/12   2018/09/12 12:18:33   MARKN
_____ LARGE01    _____ 225    2018/09/12   2018/09/12 12:22:39   MARKN
_____ LOTTAS     _____ 161    2018/09/12   2018/09/12 19:05:19   MARKN
_____ LOTTTAS    _____ 184    2018/09/12   2018/09/12 19:10:38   MARKN
_____ TEMP01     _____  1     2014/08/02   2018/09/12 18:20:16   MARKN
_____ TEMP02     _____  1     2019/09/06   2019/09/06 18:26:08   MARKN

F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down     F21=Swap     F22=Left     F23=Right    F24=Cretriev
```

Editing Tools: Member Generations

- Enter some date (“Version one!”) then **END/SAVE (PF3)** to save the data

```
EDIT          MARKN.TEMP.PDSE(VSC2019) - 01.00          Columns 00001 00072
Command ==>          Scroll ==> CSR
***** ***** Top of Data *****
000001 Version one!
***** ***** Bottom of Data *****

F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down     F21=Swap     F22=Left     F23=Right    F24=Cretriev
```

Editing Tools: Member Generations

- **Select the member again and change the data to “Version two!” and END/SAVE to save the data**

```
EDIT          MARKN.TEMP.PDSE(VSC2019) - 01.00          Columns 00001 00072
Command ==>          Scroll ==> CSR
***** ***** Top of Data *****
000001 Version two!
***** ***** Bottom of Data *****

F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down     F21=Swap     F22=Left    F23=Right    F24=Cretriev
```

Editing Tools: Member Generations

- **Select the member once again and change the data to “Version three!” and END/SAVE to save the data**

```
EDIT          MARKN.TEMP.PDSE(VSC2019) - 01.00          Columns 00001 00072
Command ==>          Scroll ==> CSR
***** ***** Top of Data *****
000001 Version three!
***** ***** Bottom of Data *****

F13=Help    F14=Split    F15=End    F16=Return    F17=Rfind    F18=Rchange
F19=Up      F20=Down     F21=Swap   F22=Left     F23=Right   F24=Cretriev
```

Editing Tools: Member Generations

- Now, go back to the edit member selection list and select the member, but put a “/” in the prompt column

```
EDIT                                MARKN.TEMP.PDSE                                Row 0000008 of 0000008
Command ==>                                Scroll ==> HALF
      Name      Prompt      Size  Created      Changed      ID
e_____ VSC2019  /           1  2019/10/01  2019/10/01 00:21:32  MARKN

F13=Help   F14=Split   F15=End    F16=Return  F17=Rfind   F18=Rchange
F19=Up     F20=Down   F21=Swap   F22=Left    F23=Right   F24=Cretriev
```

Editing Tools: Member Generations

- You will now see the additional information panel where you can indicate which version of the member that you want to work with
 - 0=current, -1= previous, -2= previous to the previous, et cetera

```
EDIT Entry Panel                                     More:      +

Object Name:
'MARKN.TEMP.PDSE(VSC2019) '
* No workstation connection
Initial Macro . .
PDSE Generation. . -3
Line Command Table
Profile Name . . . (Blank defaults to Type)
Format Name . . .
Panel Name . . . . (Leave blank for default)

Options                                           Data Encoding
/ Confirm Cancel/Move/Replace                   1. ASCII
EDIT Mixed Mode                                 2. UTF-8
EDIT host file on
Workstation
Preserve VB record length

F13=Help    F14=Split    F15=End    F16=Return    F17=Rfind    F18=Rchange
F19=Up      F20=Down     F21=Swap   F22=Left     F23=Right   F24=Cretriev
```

Editing Tools: Member Generations

- You now see the minus 3 generation which is “Version one!”

```
EDIT          MARKN.TEMP.PDSE (VSC2019) - 01.00          Columns 00001 00072
Command ==>          Scroll ==> CSR
***** ***** Top of Data *****
000001 Version one!
***** ***** Bottom of Data *****

F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down     F21=Swap     F22=Left    F23=Right    F24=Cretriev
```

UTILITIES

Utilities: The COMPARE Command

- The COMPARE command compares the current member and the specified member
- The three first records are in UNLOAD1 and not in this member (UNLOAD2)

```
EDIT          MARKN.IRRDBU00.PDSE (UNLOAD2) - 01.00          Columns 00001 00072
Command ==> compare unload1                               Scroll ==> CSR
***** ***** Top of Data *****
===== 0102 ANDREWS  PATTY    USE
===== 0102 ANDREWS  MAXINE   USE
===== 0102 ANDREWS  LAVERNE  USE
000004 0100 ANDREWS  SYS1    2011-02-25 MARKN  NONE  NO
000005 0100 DEFAULTG SYS1    2011-02-25 MARKN  NONE  NO
000006 0102 GPAUTH  UAUTH$CO CONNECT
000007 0102 GPAUTH  UAUTH$CR CREATE
000008 0102 GPAUTH  UAUTH$JO JOIN
000009 0102 GPAUTH  UAUTH$US USE
000010 0100 GPAUTH  SYS1    2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHCO UAUTH$CO CONNECT
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap     F22=Left    F23=Right    F24=Cretriev
```

Utilities: The COMPARE Command...

- ... but we can add them with the “make data” (MD) command!
- The three first records are in UNLOAD1 and not in this member (UNLOAD2)

```
EDIT          MARKN.IRRDBU00.PDSE (UNLOAD2) - 01.00          Columns 00001 00072
Command ==> compare unload1                               Scroll ==> CSR
***** ***** Top of Data *****
md===== 0102 ANDREWS  PATTY    USE
md===== 0102 ANDREWS  MAXINE   USE
md===== 0102 ANDREWS  LAVERNE  USE
000004 0100 ANDREWS  SYS1     2011-02-25 MARKN  NONE  NO
000005 0100 DEFAULTG SYS1     2011-02-25 MARKN  NONE  NO
000006 0102 GPAUTH  UAUTH$CO CONNECT
000007 0102 GPAUTH  UAUTH$CR CREATE
000008 0102 GPAUTH  UAUTH$JO JOIN
000009 0102 GPAUTH  UAUTH$US USE
000010 0100 GPAUTH  SYS1     2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHCO UAUTH$CO CONNECT
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap    F22=Left    F23=Right    F24=Cretriev
```

Utilities: The COMPARE Command...

- ... but we can add them with the “make data” (MD) command!
- The three first records are in UNLOAD1 and not in this member (UNLOAD2)

```
EDIT          MARKN.IRRDBU00.PDSE (UNLOAD2) - 01.00          Columns 00001 00072
Command ==> compare unload1                               Scroll ==> CSR
***** ***** Top of Data *****
000001 0102 ANDREWS  PATTY    USE
000002 0102 ANDREWS  MAXINE   USE
000003 0102 ANDREWS  LAVERNE  USE
000004 0100 ANDREWS  SYS1     2011-02-25 MARKN  NONE  NO
000005 0100 DEFAULTG SYS1     2011-02-25 MARKN  NONE  NO
000006 0102 GPAUTH  UAUTH$CO CONNECT
000007 0102 GPAUTH  UAUTH$CR CREATE
000008 0102 GPAUTH  UAUTH$JO JOIN
000009 0102 GPAUTH  UAUTH$US USE
000010 0100 GPAUTH  SYS1     2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHCO UAUTH$CO CONNECT
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap     F22=Left    F23=Right    F24=Cretriev
```

Utilities: The COMPARE Command...

- The “compare *” command compares the current edited version with the saved version
- The three first records are in UNLOAD1 and not in this member (UNLOAD2)

```
EDIT          MARKN.IRRDBU00.PDSE (UNLOAD2) - 01.00          Columns 00001 00072
Command ==>>>                                           Scroll ==>> CSR
***** ***** Top of Data *****
d000001 0100 ANDREWS  SYS1      2011-02-25 MARKN  NONE  NO
0000002 0100 DEFAULTG SYS1      2011-02-25 MARKN  NONE  NO
d000003 0102 GPAUTH   UAUTH$CO CONNECT
0000004 0102 GPAUTH   UAUTH$CR CREATE
d000005 0102 GPAUTH   UAUTH$JO JOIN
0000006 0102 GPAUTH   UAUTH$US USE
0000007 0100 GPAUTH   SYS1      2011-02-25 MARKN  NONE  NO
0000008 0102 GPAUTHCO UAUTH$CO CONNECT
0000009 0100 GPAUTHCO SYS1      2011-02-25 MARKN  NONE  NO
0000010 0102 GPAUTHCR UAUTH$CR CREATE
0000011 0100 GPAUTHCR SYS1      2011-02-25 MARKN  NONE  NO
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap     F22=Left    F23=Right    F24=Cretriev
```

Utilities: The COMPARE Command...

- The “compare *” shows us what has changed
- The three first records are in UNLOAD1 and not in this member (UNLOAD2)

```
EDIT          MARKN.IRRDBU00.PDSE (UNLOAD2) - 01.00          Columns 00001 00072
Command ==>  compare *          Scroll ==> CSR
***** Top of Data *****
000001 0100 DEFAULTG SYS1      2011-02-25 MARKN  NONE  NO
000002 0102 GPAUTH  UAUTH$CR CREATE
000003 0102 GPAUTH  UAUTH$US USE
000004 0100 GPAUTH  SYS1      2011-02-25 MARKN  NONE  NO
000005 0102 GPAUTHCO UAUTH$CO CONNECT
000006 0100 GPAUTHCO SYS1      2011-02-25 MARKN  NONE  NO
000007 0102 GPAUTHCR UAUTH$CR CREATE
000008 0100 GPAUTHCR SYS1      2011-02-25 MARKN  NONE  NO
000009 0102 GPAUTHJO UAUTH$JO JOIN
000010 0100 GPAUTHJO SYS1      2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHUS UAUTH$US USE
000012 0100 GPAUTHUS SYS1      2011-02-25 MARKN  NONE  NO
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap    F22=Left    F23=Right    F24=Cretriev
```

Utilities: The COMPARE Command...

- The “compare *” shows us what has changed
- The three first records are in UNLOAD1 and not in this member (UNLOAD2)

```
EDIT          MARKN.IRRDBU00.PDSE (UNLOAD2) - 01.00          Columns 00001 00072
Command ==>  compare *                                     Scroll ==> CSR
***** ***** Top of Data *****
===== 0100 ANDREWS  SYS1      2011-02-25 MARKN  NONE  NO
000001 0100 DEFAULTG SYS1      2011-02-25 MARKN  NONE  NO
===== 0102 GPAUTH  UAUTH$CO CONNECT
000002 0102 GPAUTH  UAUTH$CR CREATE
===== 0102 GPAUTH  UAUTH$JO JOIN
000003 0102 GPAUTH  UAUTH$US USE
000004 0100 GPAUTH  SYS1      2011-02-25 MARKN  NONE  NO
000005 0102 GPAUTHCO UAUTH$CO CONNECT
000006 0100 GPAUTHCO SYS1      2011-02-25 MARKN  NONE  NO
000007 0102 GPAUTHCR UAUTH$CR CREATE
000008 0100 GPAUTHCR SYS1      2011-02-25 MARKN  NONE  NO
000009 0102 GPAUTHJO UAUTH$JO JOIN
000010 0100 GPAUTHJO SYS1      2011-02-25 MARKN  NONE  NO
000011 0102 GPAUTHUS UAUTH$US USE
F13=Help      F14=Split    F15=End      F16=Return   F17=Rfind    F18=Rchange
F19=Up        F20=Down    F21=Swap     F22=Left    F23=Right    F24=Cretriev
```

Utilities: Resetting ISPF Statistics

- **Member ISPF statistics are not to be trusted... they can be changed!**
- **ISPF option 3.5 gives one way**

```
Reset ISPF Statistics

Option ==> R

R Reset (create/update) ISPF statistics   D Delete ISPF statistics

New Userid . . . . . DRWHO      (If userid is to be changed)
New Version Number . . . . .      (If version number is to be changed)

SCLM Setting                               Enter "/" to select option
3  1. SCLM   2. Non-SCLM   3. As is        /  Reset Mod Level
                                       /  Reset Sequence Numbers
                                       /  Reset Date/Time
                                       /  Reset Number of Lines

ISPF Library:
Project . . . . . MARKN
Group . . . . . TEMP3
Type . . . . . PDSE
Member . . . . .          (Blank or pattern for member selection
                           list, "*" for all members)

Other Partitioned Data Set:
Name . . . . .
Volume Serial . . . . .      (If not cataloged)

Data Set Password . . . . .      (If password protected)
F13=Help   F14=Split   F15=End   F16=Return   F17=Rfind   F18=Rchange
F19=Up     F20=Down    F21=Swap  F22=Left   F23=Right   F24=Cretriev
```

Utilities: Resetting ISPF Statistics...

- **Select the members that you want to change....**

```
RESET      MARKN.TEMP3.PDSE                               Row 0000001 of 0000001
Command ===>                                           Scroll ===> HALF
  Name      Prompt          Size   Created      Changed      ID
s TEST      1             2019/09/27  2019/09/27 23:30:35  MARKN
**End**

F13=Help    F14=Split    F15=End     F16=Return   F17=Rfind    F18=Rchange
F19=Up      F20=Down    F21=Swap    F22=Left     F23=Right    F24=Cretriev
```


Utilities: Resetting ISPF Statistics...

- ... and make is so!

```
RESET      MARKN.TEMP3.PDSE                               Row 0000001 of 0000001
Command ===>                                           Scroll ===> HALF
  Name      Prompt      Size   Created      Changed      ID
. TEST      *RESET      1     2019/09/27   2019/09/27 23:35:48   DRWHO
**End**

F13=Help    F14=Split    F15=End     F16=Return   F17=Rfind    F18=Rchange
F19=Up      F20=Down    F21=Swap    F22=Left     F23=Right    F24=Cretriev
```

ISRDDN

ISRDDN Overview

- **Contained within ISPF is a debugging tool, ISRDDN, which can be used to:**
 - Examine the data sets allocated to a DD name
 - Browse storage that is accessible to non-authorized callers
 - Identify the 'fetch location' for a module loaded by the user
 - Find the data sets which contained a specific member
 - Identify I/O errors caused by mixed record format allocations
 - Find who is allocated specific data sets
 - Identify member names or LPA load modules are duplicated in the user's current allocations
 - Find empty data sets in data set concatenations

Getting into ISRDDN

- **ISRDDN is invoked from any place in ISPF where you can enter a TSO command**

```
Menu  List  Mode  Functions  Utilities  Help
-----
                                ISPF Command Shell
Enter TSO or Workstation commands below:

===>  isrddn

Place cursor on choice and press enter to Retrieve command

=>
=>
=>
=>
=>
=>
=>
=>
=>
=>
=>
=>
=>
=>
=>
F1=Help      F2=Split    F3=Exit     F7=Backward F8=Forward  F9=Swap
F10=Actions  F12=Cancel
*CMD
```

First ISRDDN Panel

- The first/home ISRDDN panel is a list of the DD names allocated to the TSO session and the data sets allocated to those DDNAMES

Current Data Set Allocations						Row 1 of 122
Volume	Disposition	Act	DDname	Data Set Name	Actions: B E V M F C I Q	
	NEW,DEL	>	\$ASM	NULLFILE (Dummy)		
	NEW,DEL	>	\$CLIST	NULLFILE (Dummy)		
	NEW,DEL	>	\$CNTL	NULLFILE (Dummy)		
	NEW,DEL	>	\$LIST	NULLFILE (Dummy)		
	NEW,DEL	>	\$LOAD	NULLFILE (Dummy)		
	NEW,DEL	>	\$OBJ	NULLFILE (Dummy)		
	NEW,DEL	>	\$PLS	NULLFILE (Dummy)		
	NEW,DEL	>	\$TEXT	NULLFILE (Dummy)		
SPOOL1	SHR,KEEP	>	HASPINDX	ISF.HASPINDX		
ZD113B	SHR,KEEP	>	ISPILIB	ISP.SISPSAMP		
	MOD,DEL	>	ISPLIST	----- J3DR Subsystem file -----		
ZD113B	SHR,KEEP	>	ISPLLIB	GIM.SGIMLMD0		
ZD113B	SHR,KEEP	>		SYS1.DFQLLIB		
ZD113B	SHR,KEEP	>		SYS1.DGTLLIB		
ZD113B	SHR,KEEP	>		SYS1.SCBDHENU		
	MOD,DEL	>	ISPLOG	----- J3DR Subsystem file -----		
ZD113B	SHR,KEEP	>	ISPMLIB	SYS1.SERBMENU		
Command ==>						
Scroll ==>						
F1=Help	F2=Split	F3=Exit	F5=Rfind	F7=Up	F8=Down F9=Swap	
F10=Left	F11=Right	F12=Cancel				
*CMD						

First ISRDDN Panel...

- Scrolling to the right shows more data set information

Current Data Set Allocations							Row 1 of 122
Blksz	Lrecl	RCFM	Org	Act	DDname	Data Set Name	Actions: B E V M F C I Q
			PS	>	\$ASM	NULLFILE (Dummy)	
			PS	>	\$CLIST	NULLFILE (Dummy)	
			PS	>	\$CNTL	NULLFILE (Dummy)	
			PS	>	\$LIST	NULLFILE (Dummy)	
			PS	>	\$LOAD	NULLFILE (Dummy)	
			PS	>	\$OBJ	NULLFILE (Dummy)	
			PS	>	\$PLS	NULLFILE (Dummy)	
			PS	>	\$TEXT	NULLFILE (Dummy)	
4096	4096	F	DA	>	HASPINDX	ISF.HASPINDX	
27920	80	FB	PO	>	ISPILIB	ISP.SISPSAMP	
				>	ISPLIST	----- J3DR Subsystem file -----	
32760	**	U	PO	>	ISPLLIB	GIM.SGIMLMD0	
32760	**	U	PO	>		SYS1.DFQLLIB	
32760	**	U	PO	>		SYS1.DGTLLIB	
32760	**	U	PO	>		SYS1.SCBDHENU	
			PS	>	ISPLOG	----- J3DR Subsystem file -----	
27920	80	FB	PO	>	ISPMLIB	SYS1.SERBMENU	
Command ==>							Scroll ==> PAGE
F1=Help	F2=Split	F3=Exit	F5=Rfind	F7=Up	F8=Down	F9=Swap	
F10=Left	F11=Right	F12=Cancel					
*CMD							

First ISRDDN Panel...

- Scrolling to the right shows more data set information

```
Open      SMS ENQWait  Act DDname   Data Set Name  Actions: B E V M F C I Q
          > $ASM      NULLFILE (Dummy)
          > $CLIST    NULLFILE (Dummy)
          > $CNTL     NULLFILE (Dummy)
          > $LIST     NULLFILE (Dummy)
          > $LOAD     NULLFILE (Dummy)
          > $OBJ      NULLFILE (Dummy)
          > $PLS      NULLFILE (Dummy)
          > $TEXT     NULLFILE (Dummy)
          > HASPINDX ISF.HASPINDX
          > ISPILIB  ISP.SISPSAMP
C1=A      > ISPLIST    ----- J3DR Subsystem file -----
Open      > ISPLLIB    GIM.SGIMLMD0
Open      >            SYS1.DFQLLIB
Open      >            SYS1.DGTLLIB
Open      >            SYS1.SCBDHENU
C1=A      > ISPLOG     ----- J3DR Subsystem file -----
Open      > ISPMLIB    SYS1.SERBMENU
Command ==>
          F1=Help   F2=Split   F3=Exit    F5=Rfind   F7=Up      F8=Down    F9=Swap
          F10=Left  F11=Right  F12=Cancel
          *CMD
```

ISRDDN Overview

- **Commands Available**
 - B Browse the first sixteen data sets or a single data set.
 - E Edit the first sixteen data sets or a single data set.
 - V View the first sixteen data sets or a single data set.
 - M Show an enhanced member list for the first sixteen data sets or a single data set.
 - F Free the entire DDNAME.
 - C Compress a PDS using the existing allocation.
 - I Provide additional data set information.
 - Q Display list of users or jobs using a data set.

Pseudo-DD names

- **You can look at APF, PARMLIB, and LPA information with these commands:**
 - **APF:** Include or remove a pseudo-ddname of APFLIST which contains a list of APF libraries.
 - **LPA:** Include or remove pseudo-ddnames LPALIB and LINKLIST which contain LPA libraries and Link List libraries respectively.
 - **PARMLIB:** Include or remove a pseudo-ddname of PARMLIB which contains a list of PARMLIB libraries.

Member Lists

- Placing an action character (“b” for browse in this example) next to a DD name creates something very interesting...

```
Current Data Set Allocations                               Row 262 of 338
Volume  Disposition Act DDname  Data Set Name  Actions: B E V M F C I Q
SL7430  SHR,KEEP  >  SYSEXEC  TIPS.TSO.REXX
SL2B06  SHR,KEEP  >                               TIPS.AUTOXREF.REXX
SL120B  SHR,KEEP  >                               TIPS.ASMXREFM.EXEC
SL732D  SHR,KEEP  >                               TIPS.AXEA.REXX
SL2B00  SHR,KEEP  >                               MASTSSI.COMMON.REXX
SL730F  SHR,KEEP  >                               TIPS.NEWTOOLS.REXX
SL1355  SHR,KEEP  >                               TIPS.MCLUSERS.REXX
SL732A  SHR,KEEP  >                               TIPS.XEDIT.CLIST
SL3602  SHR,KEEP  >                               TIPS.GENCMD.V512CLIB
PRIPKA  SHR,KEEP  >  SYSHELP  SYS1.HELP
PPP001  SHR,KEEP  >                               SYS1.TCPIP.TCPHELP
PRIPKA  SHR,KEEP  >                               SYS1.SEDGHLPI
SL7437  SHR,KEEP  >                               TIPS.TSO.HELP
SL7432  SHR,KEEP  >                               TIPS.MCLUSERS.HELP
        NEW,DEL  >  SYSIN    ----- Allocated to the terminal -----
        NEW,DEL  >  SYSPRINT ----- Allocated to the terminal -----
SL2B0D  SHR,KEEP  > b  SYSPROC  RACFDEV.IPCS.CLIST
SL7436  SHR,KEEP  >                               RACFDEV.ISPF.CLIST
PRIPKA  SHR,KEEP  >                               SYS1.ISP.SISPCLIB
SYSAQ1  SHR,KEEP  >                               SYS1.TSO.CLIST
SYSLBX  SHR,KEEP  >                               SYSTOOLS.CLIB
PRIPKA  SHR,KEEP  >                               SYS1.EOY.SEOYCLIB
SYSAQ4  SHR,KEEP  >                               EMG.V2R1M0.EMGCLIB
PRIPKA  SHR,KEEP  >                               SYS1.REXX.SFANCMD
PRIPKA  SHR,KEEP  >                               SYS1.REXX.SEAGCMD
PRIPKA  SHR,KEEP  >                               SYS1.DGTCLIBV
PRIPKA  SHR,KEEP  >                               SYS1.HRFCLST.CLIST
Command ==>
*ISRDDNP
                                         Scroll ==> PAGE
```

Member Lists...

- ... a member list for all members in all data sets! “Lib” indicates which library contains the member

```
Menu  Functions  Utilities  Help
ssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssssss
BROWSE      RACFDEV.IPCS.CLIST                                 First 16 Data Sets
Name        Prompt    Lib      Size    Created           Changed           ID
. $$$COIBM  14      24    1990/03/15  1990/03/15 16:00:00  ORIGINA
. $CONVERT  2       65    1983/12/19  1984/09/18 12:52:00  BIBOLET
. $VERIFY   2       31    1983/06/24  1987/01/12 12:22:00  BIBOLET
. #ALLOC    13
. #ASAPI2   13     104   2001/05/03  2001/05/04 11:50:19  GREAGOR
. #BANKDO   13     32    1993/03/23  1993/03/23 15:55:45  DCRPROC
. #BANKSET  13    209   1993/02/25  1993/03/03 10:59:08  DCRPROC
. #BROWSE   13     63    1988/09/26  1991/05/29 08:37:00  D15BWL1
. #DISKR    13     90    1988/09/26  1991/05/29 08:37:00  D15BWL1
. #DISKW    13     66    1988/10/27  1991/05/29 08:37:00  D15BWL1
. #DRVITMS  13     83    1990/04/02  1993/01/27 14:46:19  GREAGOR
. #EDIT     13     55    1988/10/27  1991/05/29 08:38:00  D15BWL1
. #PDSCOMP  2     183   1988/09/02  1989/04/13 10:14:00  TGBYRNE
. #SETCLVL  13     14    1986/09/08  1986/09/08 18:25:00  D24AJD1
. #SETLLIB  13    195   1999/02/17  1999/02/17 15:04:05  D15RAS1
. #TEMP     13     9     1987/05/14  1987/05/14 09:22:00  BOYLE
. #TRACER   13     8     1987/05/14  1987/05/14 09:22:00  BOYLE
. #VSAMSET  13     68    1985/11/15  1986/04/10 16:14:00  D24AJD1
. @ADC370B  3      21    1996/10/04  1996/10/04 10:03:40  AMOLLOY
. @ADC370F  3      21    1996/10/04  1996/10/04 10:06:20  AMOLLOY
. @BOOKI    3
. @BOOKM    3
. @CCPLUSB  3     16    1999/03/17  1999/05/14 15:33:23  JWELLS
. @CCPLUSF  3     16    1999/05/14  2001/12/11 10:28:06  SLMC
. @COBOLSF  3
. @COB2     3
Command ===>                                         Scroll ===> HALF
```

Looking at a Load Module

- The LOAD command attempts to load a module into storage.

```
Current Data Set Allocations                               Row 1 of 122

Volume  Disposition Act DDname  Data Set Name  Actions: B E V M F C I Q
NEW,DEL  >  $ASM    NULLFILE (Dummy)
NEW,DEL  >  $CLIST  NULLFILE (Dummy)
NEW,DEL  >  $CNTL   NULLFILE (Dummy)
NEW,DEL  >  $LIST   NULLFILE (Dummy)
NEW,DEL  >  $LOAD   NULLFILE (Dummy)
NEW,DEL  >  $OBJ    NULLFILE (Dummy)
NEW,DEL  >  $PLS    NULLFILE (Dummy)
NEW,DEL  >  $TEXT   NULLFILE (Dummy)
SPOOL1  SHR,KEEP >  HASPINDX ISF.HASPINDX
ZDR21B  SHR,KEEP >  ISPILIB  ISP.SISPSAMP
MOD,DEL  >  ISPLIST  ----- J41R Subsystem file -----
ZDR21B  SHR,KEEP >  ISPLLIB  GIM.SGIMLMD0
ZDR21B  SHR,KEEP >  SYS1.DFQLLIB
ZDR21B  SHR,KEEP >  SYS1.DGTLLIB
ZDR21B  SHR,KEEP >  SYS1.SCBDHENU
MOD,DEL  >  ISPLOG   ----- J41R Subsystem file -----
ZDR21B  SHR,KEEP >  ISPMLIB  SYS1.SERBMENU
ZDR21B  SHR,KEEP >  GIM.SGIMMENU

Command ==> load iefbr14                               Scroll ==> PAGE
F1=Help   F2=Split  F3=Exit   F5=Rfind  F7=Up     F8=Down   F9=Swap
F10=Left  F11=Right F12=Cancel
```

Looking at a Load Module...

- ... if successful, **ISRDDN** shows the module statistics....

```
----- 122
|          CSVQUERY Results          IEFBR14 |
|                                     More:  + | Q
| Module IEFBR14 was found to be already loaded. Note that
| invocations of this program name may pick up another copy from
| STEPLIB or a LIBDEF'ed data set or from a tasklib such as ISPLLIB.
| Tab to a box and press enter to view the module in storage.
|
| +-----+
| | PLPA resident |
| | Module address:00D6E000 |
| | Module size: 00000008 |
| | Reentrant |
| | Serially reusable |
| | Not loadable only |
| | Authorized library |
| | Not Authorized program |
| +-----+
|
| Command ==>
| F1=Help F2=Split F3=Exit F9=Swap F12=Cancel
|-----
|
|-----
| PAGE
```

Looking at a Load Module...

- ... and the “object code.”

```
BROWSE      IEFBR14.PLPA.Start:00D6E000.Size:00000008  Line 00000000 Col 001 080
***** Top of Data *****
      +0 (00D6E000)  1BFF07FE 00000000          * ..... *
***** Bottom of Data *****

Command ==>
F1=HELP      F2=SPLIT      F3=END      F4=RETURN      F5=RFIND      F6=RCHANGE
F7=UP        F8=DOWN        F9=SWAP     F10=LEFT      F11=RIGHT     F12=RETRIEVE

Scroll ==> PAGE
```

Looking at a Load Module...

- You can ask ISRDDN to “disassemble” the load module with the **DISASM** command

```
BROWSE      IEFBR14.PLPA.Start:00D6E000.Size:00000008  Line 00000000 Col 001 080
***** Top of Data *****
      +0 (00D6E000)  1BFF07FE 00000000          * ..... *
***** Bottom of Data *****

Command ==> DISASM
F1=HELP      F2=SPLIT      F3=END        F4=RETURN     F5=RFIND     F6=RCHANGE
F7=UP        F8=DOWN        F9=SWAP      F10=LEFT     F11=RIGHT    F12=RETRIEVE

Scroll ==> PAGE
```

Looking at a Load Module...

- You will be asked if you are authorized to do this...

```
BROWSE      IEFBR14.PLPA.Start:00D6E000.Size:00000008  Line 00000000 Col 001 080
***** Top of Data *****
      +0 (00D6E000)  1BFF07FE 00000000                * ..... *
***** Bottom of Data *****

      *** WARNING ***
      *** WARNING ***

                                          More:   +

Before using this function you must be aware of and
respect the intellectual property rights of others.
You are not authorized to use this function to
disassemble, copy or create assembly listings
or disassembled Assembler Language source code
in violation of any contractual or other legal
obligation. You are authorized to use this function
only for code for which you have verified you have
the right to perform disassembly.

Only type YES to proceed if you believe you have the

Command ===> | F1=HELP      F2=SPLIT     F3=END       F4=RETURN    | PAGE
F1=HELP       | F5=RFIND     F6=RCHANGE   F7=UP        | GE
F7=UP         |              |              |              | EVE
-----|-----|-----|-----|-----
```


Looking at a Load Module...

- ...and if you say “yes”, your module is disassembled.

```
BROWSE      IEFBR14.PLPA.Start:00D6E000.Size:00000008  Line 00000000 Col 001 080
***** Top of Data *****
(00D6E000)   +0  1BFF          A0000000 SR      R15,R15
(00D6E002)   +2  07FE          BR      R14
(00D6E004)   +4  0000 0000      DC      X'00000000'
***** Bottom of Data *****

Command ==>
F1=HELP      F2=SPLIT    F3=END      F4=RETURN   F5=RFIND    F6=RCHANGE
F7=UP        F8=DOWN     F9=SWAP     F10=LEFT    F11=RIGHT   F12=RETRIEVE

Scroll ==> PAGE
```

Browsing Storage

- **ISRDDN allows you to browse storage within your address space**
 - Storage must be accessible to a key 8, non-authorize, problem state program
 - Command syntax is similar to TSO TEST/TESTAUTH
 - Can list arrays using the ARRAY format instruction
 - Can chain together lists using the CHAIN command
 - Can format lists of pointers using the ARRAYP
- **Some interesting storage locations:**
 - CVT: 10.?
 - RCVT: 10.?+3E0?
 - List of General Resource Classes: 10.?+3e0?+BC

Browsing Storage

- **BROWSE** let's you look at storage in your address space, accessible by non-authorized programs

```
Current Data Set Allocations                               Row 1 of 122

Volume  Disposition Act DDname  Data Set Name  Actions: B E V M F C I Q
NEW,DEL > $ASM    NULLFILE (Dummy)
NEW,DEL > $CLIST  NULLFILE (Dummy)
NEW,DEL > $CNTL  NULLFILE (Dummy)
NEW,DEL > $LIST  NULLFILE (Dummy)
NEW,DEL > $LOAD  NULLFILE (Dummy)
NEW,DEL > $OBJ   NULLFILE (Dummy)
NEW,DEL > $PLS   NULLFILE (Dummy)
NEW,DEL > $TEXT  NULLFILE (Dummy)
SPOOL1  SHR,KEEP > HASPINDX ISF.HASPINDX
ZDR21B  SHR,KEEP > ISPILIB  ISP.SISPSAMP
MOD,DEL > ISPLIST  ----- J41R Subsystem file -----
ZDR21B  SHR,KEEP > ISPLLIB  GIM.SGIMLMD0
ZDR21B  SHR,KEEP >          SYS1.DFQLLIB
ZDR21B  SHR,KEEP >          SYS1.DGTLLIB
ZDR21B  SHR,KEEP >          SYS1.SCBDHENU
MOD,DEL > ISPLOG  ----- J41R Subsystem file -----
ZDR21B  SHR,KEEP > ISPMLIB  SYS1.SERBMENU
ZDR21B  SHR,KEEP >          GIM.SGIMMENU
Command ==> browse 10.?.?+3e?                               Scroll ==> PAGE
F1=Help   F2=Split  F3=Exit   F5=Rfind  F7=Up     F8=Down   F9=Swap
F10=Left  F11=Right F12=Cancel
```

Browsing Storage

- Offset, address, hex data, and EBCDIC representation of the hex data is shown. Offset +BC in the RCVT is the class descriptor table.

```
BROWSE          STORAGE..Start: 00FBB578                                10.?+3E0?
***** Top of Data *****
+0 (00FBB578)    D9C3E5E3 00AE4368 00AE43C0 083BF000 * RCVT.....{..0. *
+10 (00FBB588)  00000000 083B4000 00000000 00000000 * ..... *
+20 (00FBB598)  00000000 00F02A28 0000BE90 00AE43F0 * .....0.....0 *
+30 (00FBB5A8)  00000000 103D000C D9C1C3C6 C4D9E5D9 * .....RACFDRVR *
+40 (00FBB5B8)  4BD9C1C3 C6F3F1C4 40404040 40404040 * .RACF31D *
+50 (00FBB5C8)  40404040 40404040 40404040 40404040 * *
+60 (00FBB5D8)  40404040 E2E8E2F1 4BE4C1C4 E2404040 *      SYS1.UADS *
+70 (00FBB5E8)  40404040 40404040 40404040 40404040 * *
+80 (00FBB5F8)  40404040 40404040 40404040 40404040 * *
+90 (00FBB608)  E2D7D6D6 D3F13000 00030E1E 80BE7DFC * SPOOL1.....'. *
+A0 (00FBB618)  00000000 00000000 00BC0920 08000000 * ..... *
+B0 (00FBB628)  00000000 00000000 00000000 00FBD330 * .....L. *
+C0 (00FBB638)  00B118F8 00BF2000 00000000 00000000 * ...8..... *
+D0 (00FBB648)  00000000 80B06D88 863BB000 00000000 * ....._hf..... *
+E0 (00FBB658)  084330B0 00CE5E48 00C05B08 00000000 * .....;..{$..... *
+F0 (00FBB668)  01000000 00000000 00000000 00000000 * ..... *
+100 (00FBB678) 00000000 00000000 00000000 00000000 * ..... *
+110 (00FBB688) 00000000 00000000 00000000 00000000 * ..... *
+120 (00FBB698) 00000000 00000000 00000000 00000000 * ..... *
Command ==> browse 10.?+3e0?+BC?                                Scroll ==> PAGE
```

Browsing Storage

- Data which is stored as an array of data values can be shown formatted into entries using the **ARRAY** keyword. Consider the list of classes at **10.?+3E0?+BC?** Each entry is 1C bytes long. We can format that with **ARRAY 200 1C**

```
BROWSE      STORAGE..Start: 00FBD330                               Line 000000 10.?+3E0?+BC?
***** Top of Data *****
+0 (00FBD330) 001C49D9 E5C1D9E2 D4C2D9D9 C1C3C6E5 * ...RVARSMBRRACFV *
+10 (00FBD340) C1D9E227 F0F00102 022383E0 001C4AD9 * ARS.00....c\...çR *
+20 (00FBD350) C1C3C6E5 C1D9E2D9 E5C1D9E2 D4C2D908 * ACFVARSRVARSMBR. *
+30 (00FBD360) F0E00192 02238478 001C01E2 C5C3D3D4 * 0\.k..d....SECLM *
+40 (00FBD370) C2D940E2 C5C3D3C1 C2C5D304 F0F00102 * BR SECLABEL.00.. *
+50 (00FBD380) 02238510 001C3AE2 C5C3D3C1 C2C5D3E2 * ..e....SECLABELS *
+60 (00FBD390) C5C3D3D4 C2D94008 C0E00192 022385A8 * ECLMBR .{\.k..ey *
+70 (00FBD3A0) 001C05C4 C1E2C4E5 D6D340C7 C4C1E2C4 * ...DASDVOL GDASD *
+80 (00FBD3B0) E5D6D306 E0E0007A 02238640 001C27C7 * VOL.\.\.:...f ...G *
+90 (00FBD3C0) C4C1E2C4 E5D6D3C4 C1E2C4E5 D6D34006 * DASDVOLDASDVOL . *
+A0 (00FBD3D0) E0E000E2 022386D8 001C06E3 C1D7C5E5 * \\.S..fQ...TAPEV *
+B0 (00FBD3E0) D6D34040 40404040 40404006 E0E00062 * OL .\.\.. *
+C0 (00FBD3F0) 02238770 001C07E3 C5D9D4C9 D5C1D3C7 * ..g....TERMINALG *
+D0 (00FBD400) E3C5D9D4 C9D5D308 E0E0005A 02238808 * TERMINL.\.\!..h. *
+E0 (00FBD410) 001C2AC7 E3C5D9D4 C9D5D3E3 C5D9D4C9 * ...GTERMINLTERMI *
+F0 (00FBD420) D5C1D308 E0E000C2 022388A0 001C08C1 * NAL.\.\.B..h....A *
+100 (00FBD430) D7D7D340 40404040 40404040 40404008 * PPL . *
+110 (00FBD440) C0E0011E 02238938 001C09E3 C9D4E240 * {\....i....TIMS *
+120 (00FBD450) 404040C7 C9D4E240 40404008 E0E00102 * GIMS .\.\.. *
Command ==> array 200 1C                                         Scroll ==> PAGE
F1=HELP      F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
F7=UP        F8=DOWN       F9=SWAP      F10=LEFT     F11=RIGHT    F12=RETRIEVE
```

Browsing Storage...

- The formatted result:

```
BROWSE      STORAGE..Start: 00FBD330                               Line 00000001 Col 001 080
+1 (00FBD330) 001C49D9 E5C1D9E2 D4C2D9D9 C1C3C6E5 * ...RVARSMBRRACFV *
  (00FBD340) C1D9E227 F0F00102 022383E0 * ARS.00....c\ *
+2 (00FBD34C) 001C4AD9 C1C3C6E5 C1D9E2D9 E5C1D9E2 * ..çRACFVARSRVARS *
  (00FBD35C) D4C2D908 F0E00192 02238478 * MBR.0\.k..d. *
+3 (00FBD368) 001C01E2 C5C3D3D4 C2D940E2 C5C3D3C1 * ...SECLMBR SECLA *
  (00FBD378) C2C5D304 F0F00102 02238510 * BEL.00....e. *
+4 (00FBD384) 001C3AE2 C5C3D3C1 C2C5D3E2 C5C3D3D4 * ...SECLABELSECLM *
  (00FBD394) C2D94008 C0E00192 022385A8 * BR .{\.k..ey *
+5 (00FBD3A0) 001C05C4 C1E2C4E5 D6D340C7 C4C1E2C4 * ...DASDVOL GDASD *
  (00FBD3B0) E5D6D306 E0E0007A 02238640 * VOL.\.\.:...f *
+6 (00FBD3BC) 001C27C7 C4C1E2C4 E5D6D3C4 C1E2C4E5 * ...GDASDVOLDASDV *
  (00FBD3CC) D6D34006 E0E000E2 022386D8 * OL .\.\.S..fQ *
+7 (00FBD3D8) 001C06E3 C1D7C5E5 D6D34040 40404040 * ...TAPEVOL *
  (00FBD3E8) 40404006 E0E00062 02238770 * .\.\....g. *
Command ==>                               Scroll ==> PAGE
F1=HELP      F2=SPLIT      F3=END        F4=RETURN     F5=RFIND      F6=RCHANGE
F7=UP        F8=DOWN       F9=SWAP      F10=LEFT     F11=RIGHT    F12=RETRIEVE
```

ENQs

- **The ENQ Command Lets you look at the ENQs on your system. The default view is for SYSDSN for your current user ID.**

```
System ENQ Status                                     Row 1 of 104

Scroll LEFT or RIGHT to see type or system name.

Major name prefix . . . SYSDSN      (SYSDSN, SPFEDIT, etc)
Minor name prefix . . .                               (dsn etc)
Address id prefix . . . NOTAUTH    (Job name, User id, etc)
System prefix . . . . .            (System name)

  Major      Minor                                     Job Name
+-----+-----+-----+-----+-----+-----+
| SYSDSN    | AOP.SAOPEXEC |          | NOTAUTH |
| SYSDSN    | AOP.SAOPMENU |          | NOTAUTH |
| SYSDSN    | AOP.SAOPPENU |          | NOTAUTH |
| SYSDSN    | CBC.SCCNUTL  |          | NOTAUTH |
| SYSDSN    | CSF.SCSFCLI0 |          | NOTAUTH |
| SYSDSN    | CSF.SCSFMSG0 |          | NOTAUTH |
| SYSDSN    | CSF.SCSFPNL0 |          | NOTAUTH |
| SYSDSN    | CSF.SCSFSKL0 |          | NOTAUTH |
| SYSDSN    | CSF.SCSFTLIB |          | NOTAUTH |
| SYSDSN    | EOX.SEPHCLB1 |          | NOTAUTH |
| SYSDSN    | EOX.SEPHMSG1 |          | NOTAUTH |
Command ==>
F1=Help    F2=Split   F3=Exit    F5=Rfind   F7=Up      F8=Down    F9=Swap
F10=Left   F11=Right  F12=Cancel
```


ENQs...

- The ENQ Command Lets you look at the ENQs on your system. The default view is for SYSDSN for your current user ID.

```
System ENQ Status                                     Row 1 of 1

Scroll LEFT or RIGHT to see type or system name.

Major name prefix . . . SYSZRACF  (SYSDSN, SPFEDIT, etc)
Minor name prefix . . .                                     (dsn etc)
Address id prefix . . .                                     (Job name, User id, etc)
System prefix . . . . . (System name)
  Major      Minor                                     Job Name
+-----+-----+-----+-----+-----+-----+-----+
| SYSZRACF | RACF      'D9C1C3C6'X                       | RACF      |
+-----+-----+-----+-----+-----+-----+

Command ==>
F1=Help    F2=Split  F3=Exit   F5=Rfind  F7=Up     F8=Down   F9=Swap
F10=Left   F11=Right  F12=Cancel
```

ISRFIND

ISPF Primary Option Menu - z/OS 02.03.00

Option ==> **TSO ISRFIND**

0	Settings	Terminal and user parameters	<	Calendar	>				
1	View	Display source data or listings		September 2019					
2	Edit	Create or change source data	Su	Mo	Tu	We	Th	Fr	Sa
3	Utilities	Perform utility functions	1	2	3	4	5	6	7
4	Foreground	Interactive language processing	8	9	10	11	12	13	14
5	Batch	Submit job for language processing	15	16	17	18	19	20	21
6	Command	Enter TSO or Workstation commands	22	23	24	25	26	27	28
7	Dialog Test	Perform dialog testing	29	30					
11	Workplace	ISPF Object/Action Workplace							
			Time	:	11:11				
G	Group	Invoke your group's custom menu	Day of year.	:	260				
M	MET	Met Menu - additional products							
U	User Guide	Met TSO Environment user guide							

Enter X to Terminate using log/list defaults

K????JC /PDF LEVEL2 DIAGNOSTIC AID

APPLID - ISR
ISPF LVL - ISPF 7.3
PDF LVL - PDF 7.3
TIME - 23:21

COMMAND ==>

DD Name	==>	DD to search (blank for all)
Dataset info	==>	(blank) for no dataset info required B for BASIC info (DSORG RECFM LRECL BLKSIZE F for FULL info (BASIC+ALLOC/USAGE+DIRECTORY
Member Name	==>	Member to search for (not required)
LOADMOD	==>	Y if the member a LOADMOD. (adds search of the LPA, LPALIST and LINKLIST)
Save Data	==>	(blank) do not save ISRFIND output S Save data in new dataset 'K????JC.ISRFIND.SAVE' A Append data to existing 'K????JC.ISRFIND.SAVE'

VANGUARD SECURITY & COMPLIANCE

K????JC ==>

Row 55 to 72 of 100

ENTER B TO BROWSE E TO EDIT

S DD/DATASET

MEMBER

=====

```

_ SYS1.SBPXTENU
_ K????P.ISP.ISPTLIB

  >> ISPSLIB <<
_ SYSTSO.MET.L3.ISPSLIB
_ SYS1.SISPSENU
_ SYS1.SISPSLIB
_ K????P.ISP.ISPSLIB

  >> SYSPROC <<
_ SYSTSO.MET.L3.CLIST
_ SYS1.SISPCLIB
_ SYS1.SBPXEXEC
B K????JC.A.CLIST SMF1
_ K????P.ISP.ISPCLIB
_ K????T.GROUP.CLIST
_ SYSCMN.PROD.CLIST
_ K????TD1.DB2DBU.CLIST
```

Just a simple example of ISREDIT to manipulate date in a VIEW or Edit session.

```
/* REXX */
ISREDIT MACRO
ISREDIT 'COL'
ISREDIT 'CAPS OFF'
ISREDIT 'RECOVERY ON'
ISREDIT 'NULLS OFF'
ISREDIT 'BNDS 1 3497'
ISREDIT 'X ":" 022 ALL'
ISREDIT 'DEL NX ALL'
ISREDIT 'C " " "`" 001 ALL'
ISREDIT 'C "-" "`" 001 ALL'
ISREDIT 'C "0" "`" 001 ALL'
ISREDIT 'C "1" "`" 001 ALL'
ISREDIT 'C P"." "" ALL'
ISREDIT "RES"
ISREDIT 'C " " "`" 020 039 ALL'
```

Questions



Contact Information

Mark Nelson

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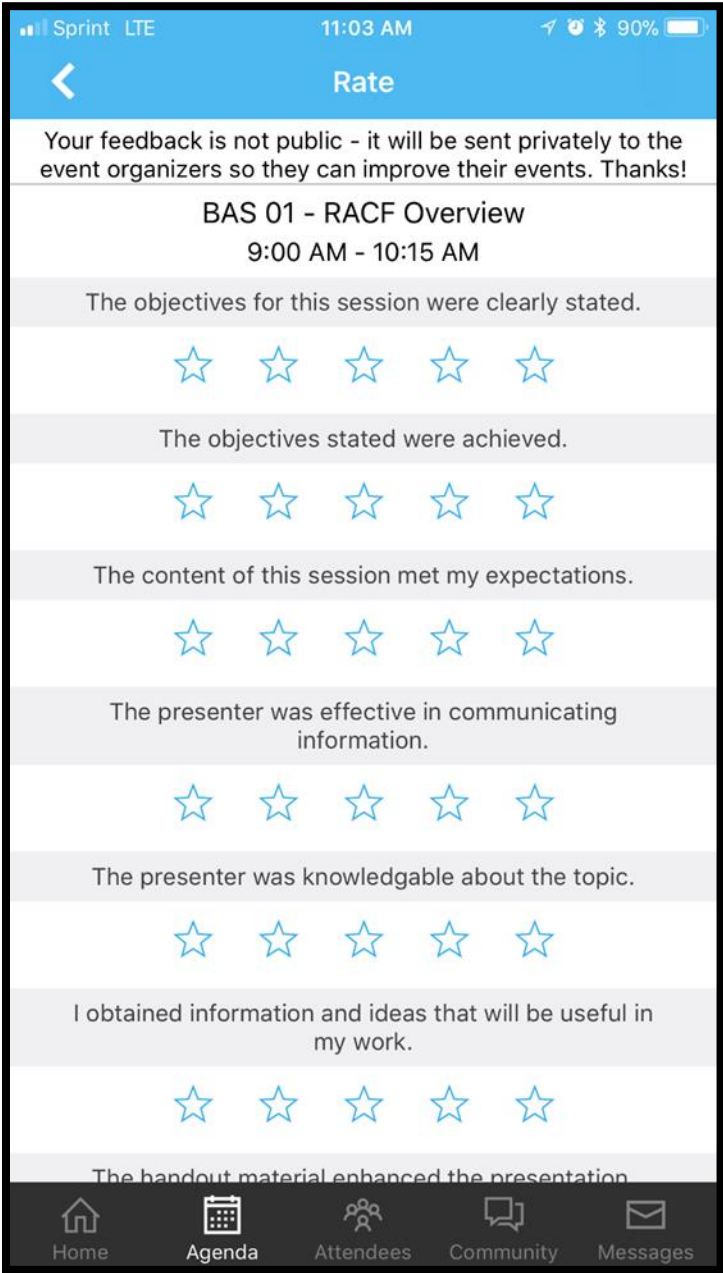
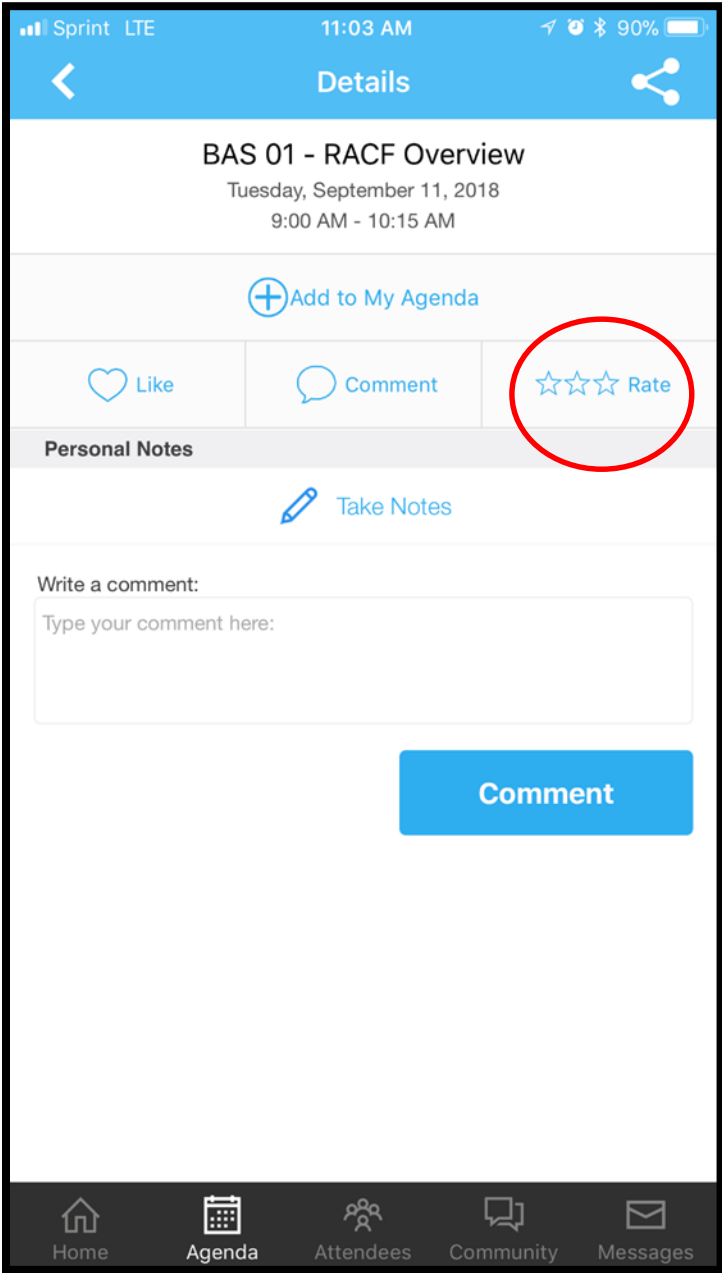
Joe Cronin

JoCronin@us.ibm.com

Session Evaluation

Be sure to rate your experience using the VSC2019 app.

Your opinion helps us bring you the best experience.
Please let us know your thoughts.



VANGUARD SECURITY & COMPLIANCE

Welcome to Charlotte!



ISPF for the Security Professional

Mark Nelson, CISSP, CSSLP, IBM
Joe Cronin, IBM

ESM07