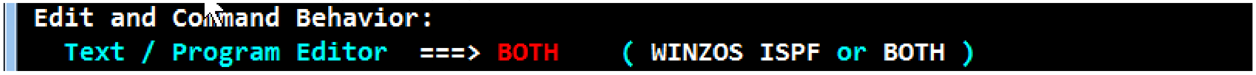
April 3, 2023

WINZOS Version 7.4
There is some confusion regarding a 32 bit WINZOS implementation and a 64 bit Windows operating system. All of the components contained within WINZOS operate with a 64 bit Windows OS.
No zOS access is required. The purpose of WINZOS is that of emulating zOS development - via Windows.

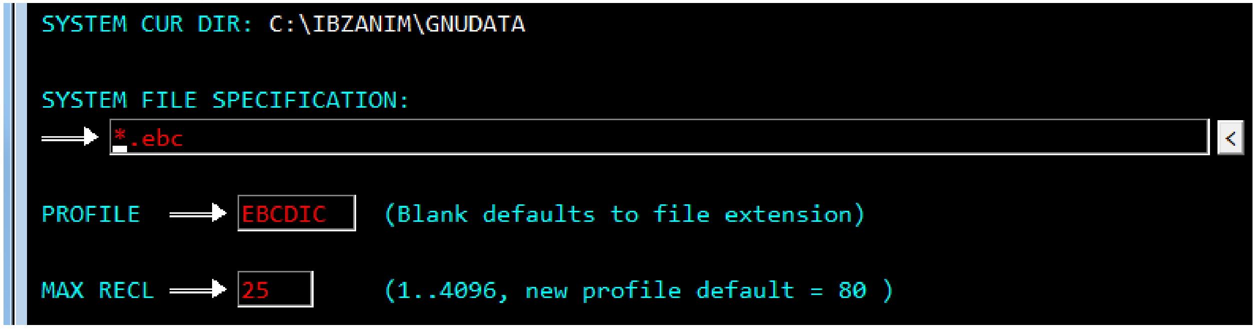
Open Source ISPF editor
Tim Tetivia passed away.
Tim was a principal of Command Technology Corp (CTC), creators of ISPF on Windows.
Tim's family made the CTC editor and source available as Free Software.

The WINZOS version of the CTC is limited to editing / browsing. I left intact colorizing source / panels
The CTC editor is enabled by specifying "BOTH" on WINZOS Panel 0.1.1



```
Edit and Command Behavior:
  Text / Program Editor  ===> BOTH    ( WINZOS ISPF or BOTH )
```

Use of "BOTH" provides editing of COBOL source with CTC
The WINZOS native ISFP editor is used when editing JCL to support "SUBMIT"
I have set F1 to cut, F2 to paste, F4 to full screen split, F9 to swap
Use the "KEYS" command line option to view and or set the PFKEY values
I have provided 2 CTC edit profiles of interest:
  EBCDIC - the LRECL is needed to edit EBCDIC data files / source files
  LBR - edit any non text file by specifying the LRECL
HEX ON / OFF is full screen
UNDO / REDO is fully functional
CHARSET EBCDIC specified on the command line enables edits of EBCDIC files
CHARSET ASCII (the default) enables edits of ASCII / Text files



```
SYSTEM CUR DIR: C:\IBZANIM\GNUDATA

SYSTEM FILE SPECIFICATION:
      *.ebc

PROFILE          EBCDIC    (Blank defaults to file extension)

MAX RECL         25        (1..4096, new profile default = 80 )
```

CUT is also enabled via mouse selection - permits copy of text to paste

The CTC tutorial is functional
However the tutorial may reference components not germane to WINZOS

I am aware of a defect that limits the cut / paste queue to ~ 1200 lines

To enable the CTC editor from anywhere edit the Windows Path statement
Add C:\WINEDIT\TIMEDIT to the Windows PATH settings
I have provided for three .EXE(s) to invoke CTC
Use either SPF.EXE or SPF2.EXE - select one that is unique to your desktop
The source and other variants of the CTC editor are available at this URL
https://github.com/michaelknigge/spf-editor

GnuCOBOL

This version of WINZOS includes GnuCOBOL Version 3.2

This is a 32 bit version of GnuCOBOL

The 32 bit version of GnuCOBOL is fully operational in 64 bit WINDOWS

I know of zero zOS COBOL applications requiring more than 2,147,483,648 bytes of addressability

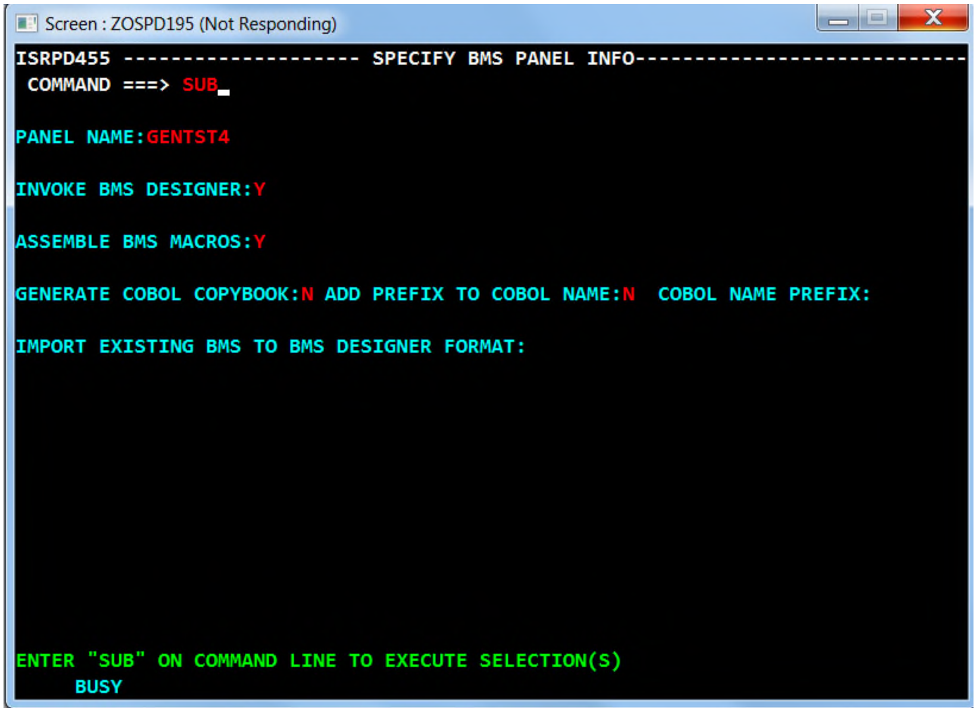
The folder C:\IBZANIM\WINGNU contains "GnuCOBOL 3.2 Manual.PDF"

Many elements within the manual are not germane to zOS COBOL applications

BMS Screen Designer

This is a feature of WINZOS that enables designing a CICS BMS screen with the CTC editor.

The screen designer is invoked via WINZOS panel "T.9"



```
ISRPD455 -------------------- SPECIFY BMS PANEL INFO----------------------------
 COMMAND ===> SUB_

PANEL NAME:GENTST4

INVOKE BMS DESIGNER:Y

ASSEMBLE BMS MACROS:Y

GENERATE COBOL COPYBOOK:N ADD PREFIX TO COBOL NAME:N  COBOL NAME PREFIX:

IMPORT EXISTING BMS TO BMS DESIGNER FORMAT:









ENTER "SUB" ON COMMAND LINE TO EXECUTE SELECTION(S)
     BUSY
```

The panel below "paints" a BMS screen

Line 1 thru line 24 are used to defined the BMS format.

Lines 25 thru 35 are provided as a reference to what each "symbol" describes.

For instance on the panel below.

A text field with a prefix of # will create a BMS title field with a color of turquoise

A text field with a prefix of ^ will paint a BMS title field with a color of yellow

The > symbol is used to define BMS output fields

The < symbol is used to define BMS Input fields (as well as being able to be addressed as output

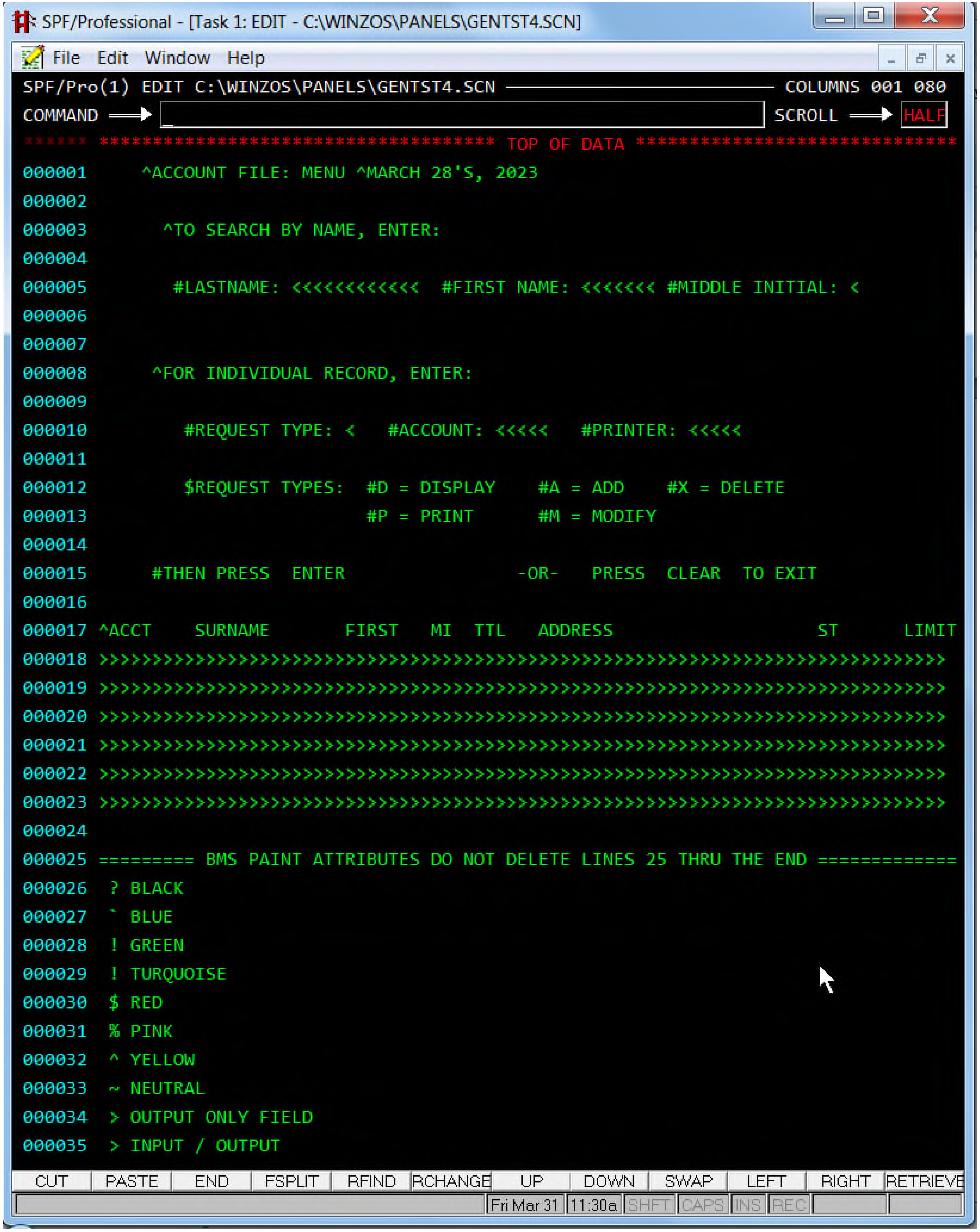
The BMS input / output fields will be a bright white color - feel free to change the color in the application.

The color field attributes are fixed.

The "keys" in lines 26 thru 35 are persistent.

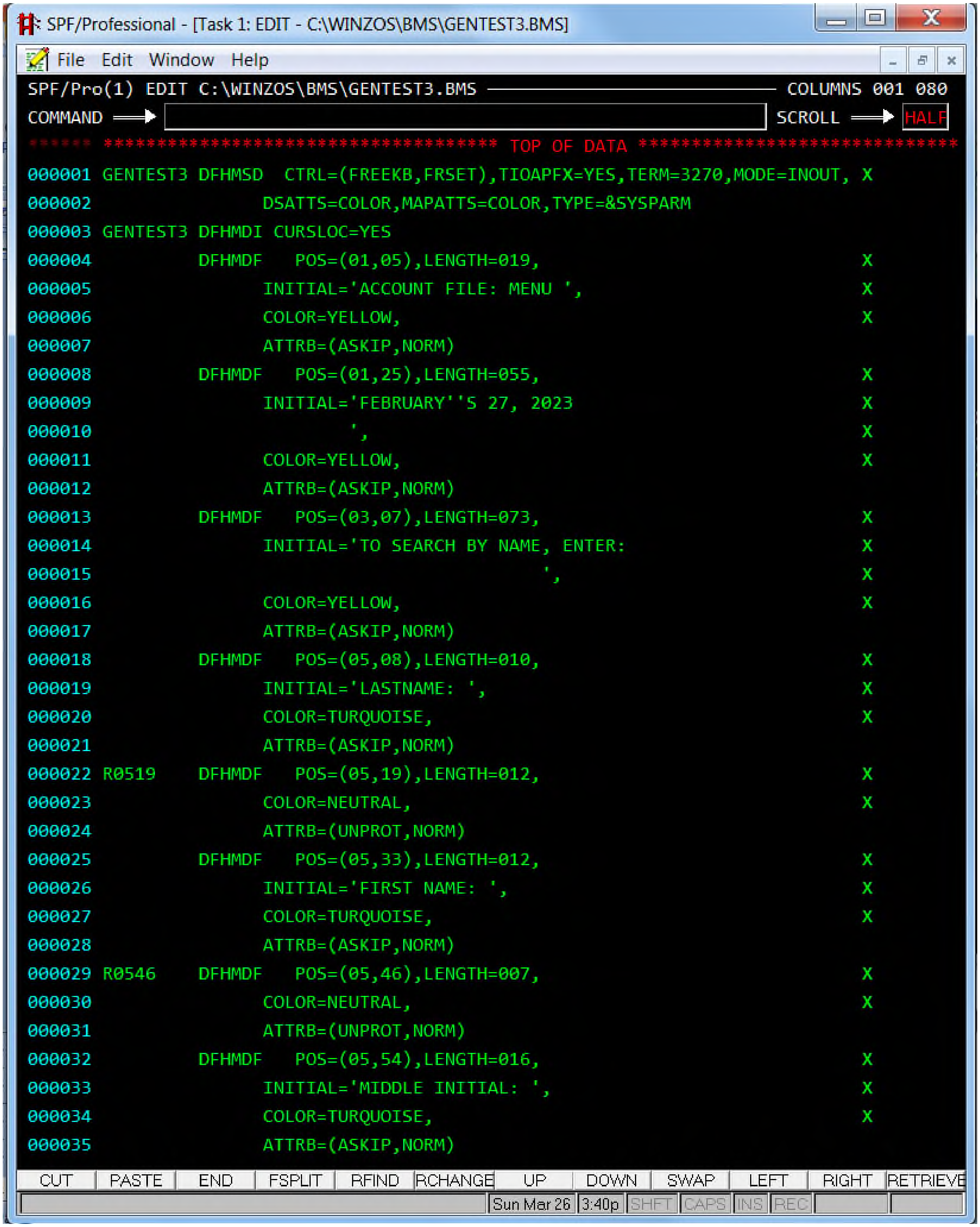
If you edit these values they will be ignored.

Screen Designer Panel via ISPF edit.



```
SPF/Pro(1) EDIT C:\WINZOS\PANELS\GENTST4.SCN ------------------------ COLUMNS 001 080
COMMAND ===> _                                                       SCROLL ===> HALF
****** ************************************* TOP OF DATA ******************************
000001     ^ACCOUNT FILE: MENU ^MARCH 28'S, 2023
000002
000003       ^TO SEARCH BY NAME, ENTER:
000004
000005        #LASTNAME: <<<<<<<<<<<<  #FIRST NAME: <<<<<<< #MIDDLE INITIAL: <
000006
000007
000008      ^FOR INDIVIDUAL RECORD, ENTER:
000009
000010         #REQUEST TYPE: <   #ACCOUNT: <<<<<   #PRINTER: <<<<<
000011
000012         $REQUEST TYPES:  #D = DISPLAY    #A = ADD    #X = DELETE
000013                          #P = PRINT      #M = MODIFY
000014
000015      #THEN PRESS  ENTER                -OR-   PRESS  CLEAR  TO EXIT
000016
000017 ^ACCT    SURNAME       FIRST   MI  TTL   ADDRESS                   ST      LIMIT
000018 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000019 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000020 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000021 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000022 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000023 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000024
000025 ========= BMS PAINT ATTRIBUTES DO NOT DELETE LINES 25 THRU THE END ============
000026  ? BLACK
000027  ` BLUE
000028  ! GREEN
000029  ! TURQUOISE
000030  $ RED
000031  % PINK
000032  ^ YELLOW
000033  ~ NEUTRAL
000034  > OUTPUT ONLY FIELD
000035  > INPUT / OUTPUT
```

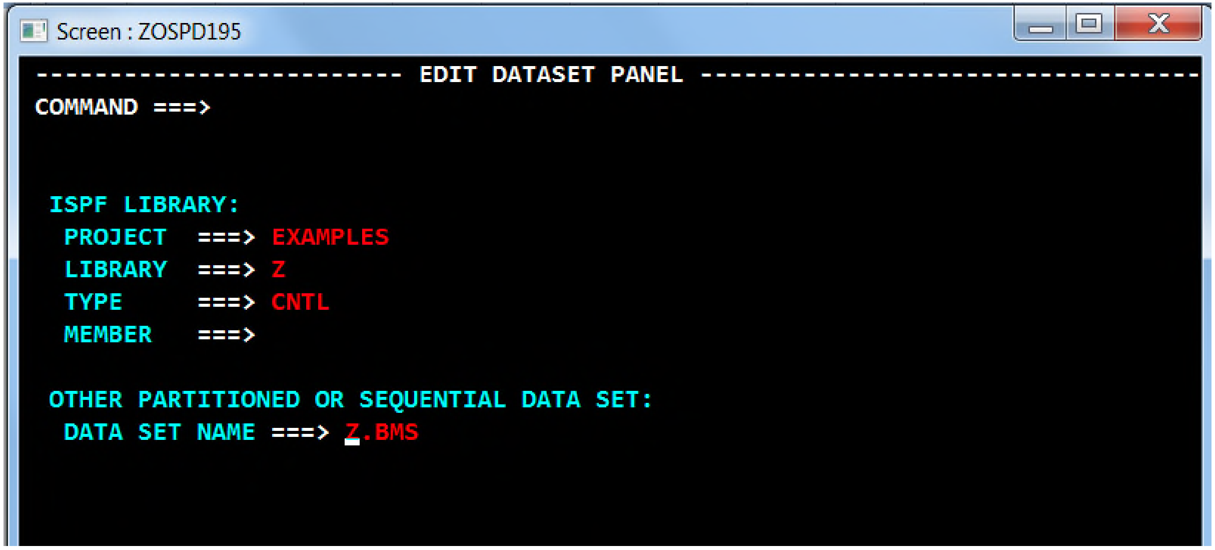
BMS Macro generated from the Screen Designer dataset (.SCN)



```
SPF/Pro(1) EDIT C:\WINZOS\BMS\GENTEST3.BMS ---------------- COLUMNS 001 080
COMMAND ===>                                                    SCROLL ===> HALF
****** ************************************* TOP OF DATA ***********************
GENTEST3 DFHMSD  CTRL=(FREEKB,FRSET),TIOAPFX=YES,TERM=3270,MODE=INOUT, X
               DSATTS=COLOR,MAPATTS=COLOR,TYPE=&SYSPARM
GENTEST3 DFHMDI CURSLOC=YES
         DFHMDF   POS=(01,05),LENGTH=019,                              X
               INITIAL='ACCOUNT FILE: MENU ',                          X
               COLOR=YELLOW,                                           X
               ATTRB=(ASKIP,NORM)
         DFHMDF   POS=(01,25),LENGTH=055,                              X
               INITIAL='FEBRUARY''S 27, 2023                           X
                       ',                                              X
               COLOR=YELLOW,                                           X
               ATTRB=(ASKIP,NORM)
         DFHMDF   POS=(03,07),LENGTH=073,                              X
               INITIAL='TO SEARCH BY NAME, ENTER:                      X
                                         ',                            X
               COLOR=YELLOW,                                           X
               ATTRB=(ASKIP,NORM)
         DFHMDF   POS=(05,08),LENGTH=010,                              X
               INITIAL='LASTNAME: ',                                   X
               COLOR=TURQUOISE,                                        X
               ATTRB=(ASKIP,NORM)
R0519    DFHMDF   POS=(05,19),LENGTH=012,                              X
               COLOR=NEUTRAL,                                          X
               ATTRB=(UNPROT,NORM)
         DFHMDF   POS=(05,33),LENGTH=012,                              X
               INITIAL='FIRST NAME: ',                                 X
               COLOR=TURQUOISE,                                        X
               ATTRB=(ASKIP,NORM)
R0546    DFHMDF   POS=(05,46),LENGTH=007,                              X
               COLOR=NEUTRAL,                                          X
               ATTRB=(UNPROT,NORM)
         DFHMDF   POS=(05,54),LENGTH=016,                              X
               INITIAL='MIDDLE INITIAL: ',                             X
               COLOR=TURQUOISE,                                        X
               ATTRB=(ASKIP,NORM)
```

After completion of the design process use the F3 key to create (and catalog) a BMS macro reflecting the design criteria. The "other partitioned dataset" is sensitive to the User ID specified in panel 0.1.1

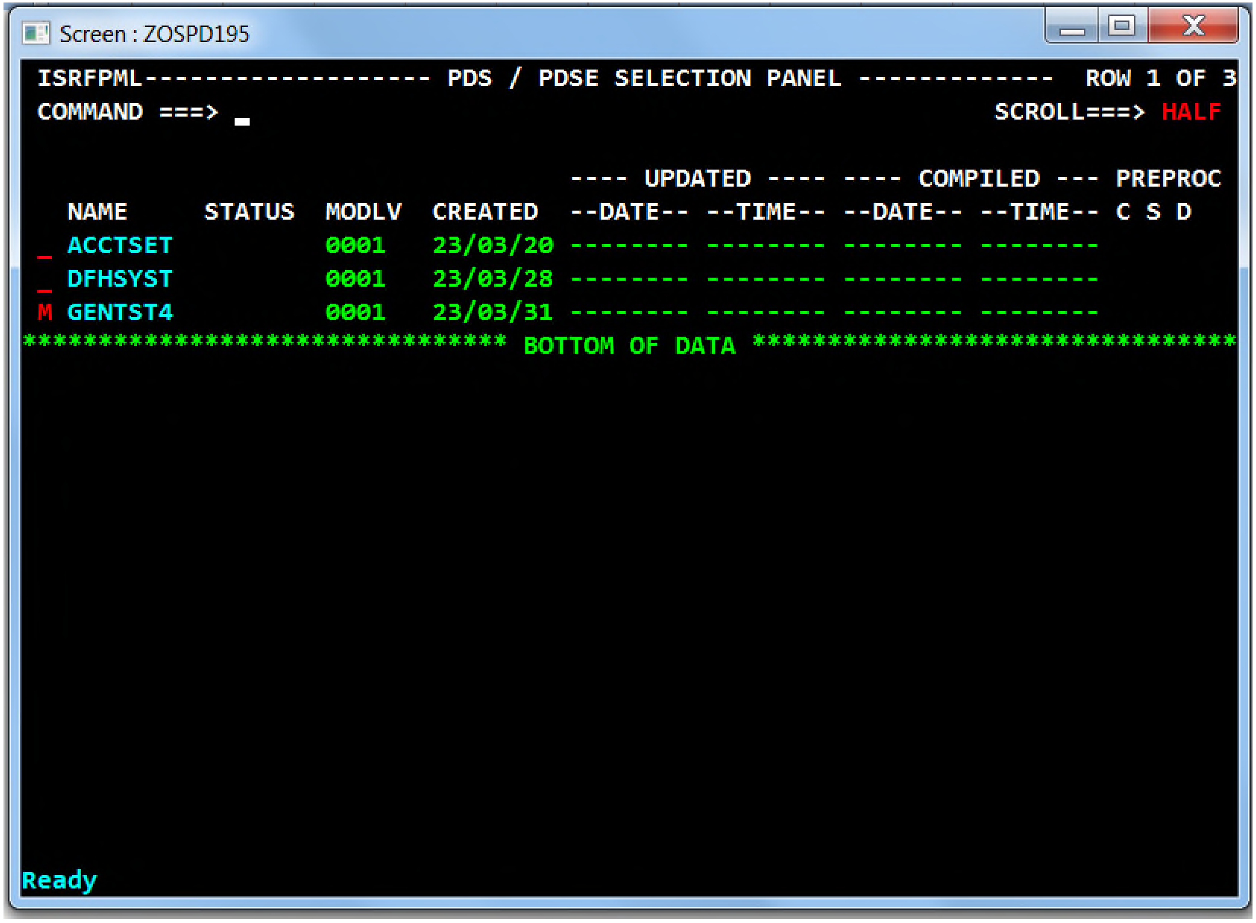
Edit panel opening member list



Screen : ZOSPD195

```
------------------------- EDIT DATASET PANEL ---------------------------------
COMMAND ===>


 ISPF LIBRARY:
  PROJECT   ===> EXAMPLES
  LIBRARY   ===> Z
  TYPE      ===> CNTL
  MEMBER    ===>

 OTHER PARTITIONED OR SEQUENTIAL DATA SET:
  DATA SET NAME ===> Z.BMS
```

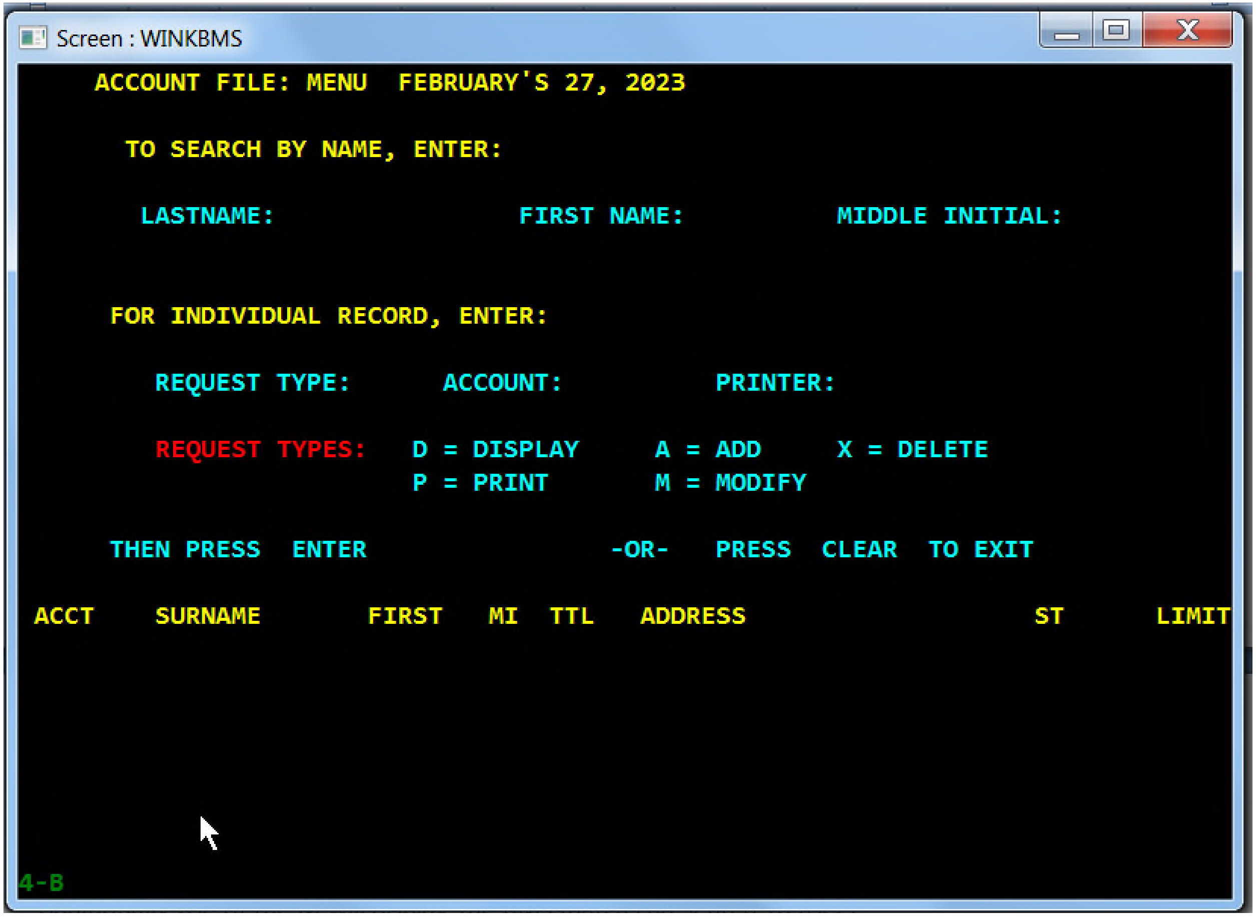
Member list of PDSE Z.BMS (above)



Screen : ZOSPD195

```
ISRFPML-------------------- PDS / PDSE SELECTION PANEL -------------  ROW 1 OF 3
COMMAND ===> _                                                   SCROLL===> HALF

                                    ---- UPDATED ---- ---- COMPILED --- PREPROC
  NAME      STATUS  MODLV  CREATED  --DATE-- --TIME-- --DATE-- --TIME-- C S D
_ ACCTSET           0001   23/03/20 -------- -------- -------- --------
_ DFHSYST           0001   23/03/28 -------- -------- -------- --------
M GENTST4           0001   23/03/31 -------- -------- -------- --------
******************************** BOTTOM OF DATA ********************************
































Ready
```

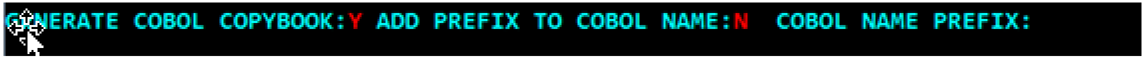
Placing an M (above) next to a BMS member will result in BMS generation into the CICS BMS "master". Additionally use of M will display the BMS map as presented to users.



```
     ACCOUNT FILE: MENU  FEBRUARY'S 27, 2023

       TO SEARCH BY NAME, ENTER:

        LASTNAME:                FIRST NAME:          MIDDLE INITIAL:


      FOR INDIVIDUAL RECORD, ENTER:

         REQUEST TYPE:      ACCOUNT:          PRINTER:

         REQUEST TYPES:   D = DISPLAY      A = ADD      X = DELETE
                          P = PRINT        M = MODIFY

      THEN PRESS  ENTER               -OR-   PRESS  CLEAR  TO EXIT

 ACCT    SURNAME       FIRST   MI  TTL   ADDRESS                   ST       LIMIT






4-B
```

Keying data as if within the application is also supported. This feature helps in determining whether the WYSIWYG designer process is in accordance with the desired CICS presentation.

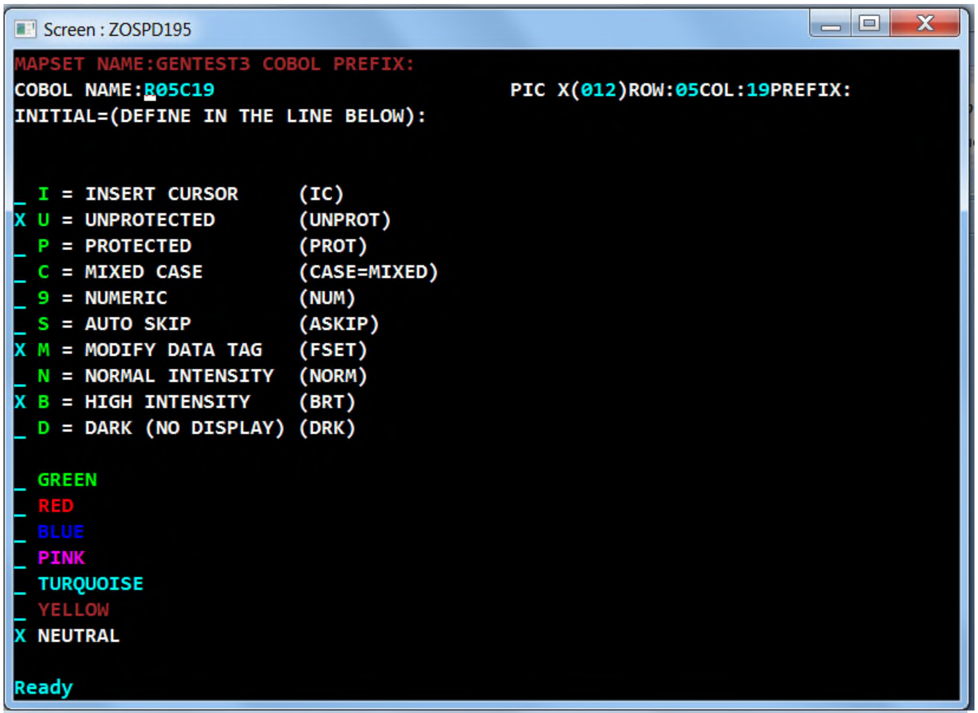
On Panel T.9 I specified that I wanted to name the map input / output data fields in the copybook generated by the service.



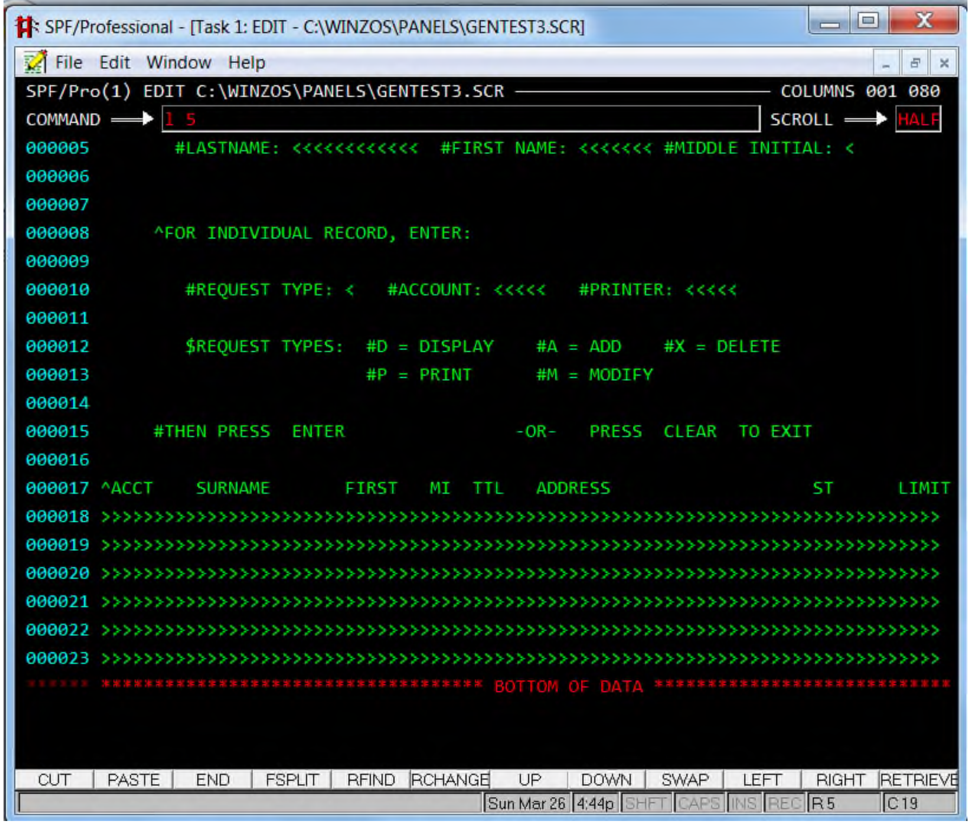
```
GENERATE COBOL COPYBOOK:Y ADD PREFIX TO COBOL NAME:N  COBOL NAME PREFIX:
```

The generate copybook feature will present each named BMS macro member in a dialog. The BMS macro was created with a RnnCnn (Row Column) for each input / output field to be referenced by a CICS application. Note: PREFIX is not operational, at this time.
Each named input output field will be presented in row column order.
Key the COBOL name to be used in the COBOL copybook for this CICS screen.
A CTC browse session of the designer screen is presented at the same time.
Reference the RnnCnn (row column) macro name and refer to CTC browse session to provide context between row column and an adjacent title value ?
The first data entry field on the test panel is R05C19 - Row 5, Column 19

Referencing the CTC display (I used L 5 [Locate row 5]) to position the cursor to row 5.
I can index the cursor to column 19 which indicates that R05C19 is used for LAST-NAME
Key the COBOL name. To save the name assigned to this data entry field use the F3 key.
The name is saved in the copybook. Must use F3 (not Enter) to save and advance to the next field



```
MAPSET NAME:GENTEST3 COBOL PREFIX:
COBOL NAME:R05C19                         PIC X(012)ROW:05COL:19PREFIX:
INITIAL=(DEFINE IN THE LINE BELOW):


_ I = INSERT CURSOR     (IC)
X U = UNPROTECTED       (UNPROT)
_ P = PROTECTED         (PROT)
_ C = MIXED CASE        (CASE=MIXED)
_ 9 = NUMERIC           (NUM)
_ S = AUTO SKIP         (ASKIP)
X M = MODIFY DATA TAG   (FSET)
_ N = NORMAL INTENSITY  (NORM)
X B = HIGH INTENSITY    (BRT)
_ D = DARK (NO DISPLAY) (DRK)

_ GREEN
_ RED
_ BLUE
_ PINK
_ TURQUOISE
_ YELLOW
X NEUTRAL

Ready
```



```
SPF/Pro(1) EDIT C:\WINZOS\PANELS\GENTEST3.SCR ---------------------- COLUMNS 001 080
COMMAND ===> l 5                                                      SCROLL ===> HALF
000005        #LASTNAME: <<<<<<<<<<<<  #FIRST NAME: <<<<<<< #MIDDLE INITIAL: <
000006
000007
000008      ^FOR INDIVIDUAL RECORD, ENTER:
000009
000010         #REQUEST TYPE: <   #ACCOUNT: <<<<<   #PRINTER: <<<<<
000011
000012         $REQUEST TYPES:  #D = DISPLAY    #A = ADD    #X = DELETE
000013                          #P = PRINT      #M = MODIFY
000014
000015      #THEN PRESS  ENTER                -OR-   PRESS  CLEAR  TO EXIT
000016
000017 ^ACCT    SURNAME       FIRST   MI  TTL   ADDRESS                   ST      LIMIT
000018 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000019 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000020 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000021 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000022 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
000023 >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>
****** ************************************ BOTTOM OF DATA ****************************
```

Debugging Aids

Since there is no actual zOS console, DISPLAY UPON CONSOLE services need a substitute.
There are 2 subroutines that make it possible to have a comparable service.
ZMSGBOX and ZMSGBOX1

To use either:
Add these data declarations to Working-Storage:

```
77  ZMSG1            PIC X(78).
77  ZMSG-T           PIC X(02) VALUE X'0000'.
77  ZMSGBOX          PIC X(08) VALUE 'ZMSGBOX'.
77  ZMSGBOX1         PIC X(08) VALUE 'ZMSGBOX1'.
```

Add these instructions to the Procedure Division.

```
MOVE 'JOB TEST001T has started' to ZMSG1. (as example text)
CALL ZMSGBOX USING ZMSG1.
```

Call ZMSGBOX1 if there is need to capture a conditional response.

```
MOVE 'Delete this data set ? Click Yes or No' TO ZMSG1'. (as example text)
CALL ZMSGBOX1 USING ZMSG1.
```

A RETURN-CODE = 6 EQUALS A "YES" REPLY
A RETURN-CODE = 7 EQUALS A "NO" REPLY
Note: As in a ZOS environment there is no support of ACCEPT [data] FROM CONSOLE.

WINZOS improvements

- A DSORG=PO (PDS / PDSE) is now properly processed
- COND= is now properly processed
- Clean up of orphaned artifacts from terminated job streams
- Job stream execution incurring data exceptions will process properly. Previously a SOC7 would terminate the JOB.
- The system log and SDF entry now contain the specific program and line number of a SOC7 +++C:\WINZOS\COBOL\PARMTEST.COB:108: DATA EXCEPTION SOC7 STEP ABENDED - where the offending program is PARMTEST and the line number causing the exception is 108
- Documentation of ZMSGBOX and ZMSGBOX1 as a procedure to facilitate DISPLAY UPON CONSOLE
- VETBMS.COB is provided as an example program. It uses the BMS screen designer and the corresponding files created via Option T.9 to build and execute a CICS transaction. Please use Option T.3 to define VETBMS.COB. Option T.4 to add VETBMS as transaction VBMS.
- Note: Use the Alt + F2 key combination when in CICS to issue a 3270 Clear key.

Prior to this release I was involved in a "lift and shift" project to migrate zOS applications from zOS to Windows. As part of my project assignment I was responsible for converting several zOS assembler programs to COBOL. I used a toolset (A2C[obol]) to convert the assembler source to COBOL. It was successful. I mention this to explain the long time frame between releases of WINZOS

Future WINZOS release plans

- Support animation of COBOL applications via "DEBUG" as an add on to submit command (in WINZOS)
- Add EBCDIC support to WINZOS
- Improve DFSORT to include many services that zOS utilizes not yet represented in WINZOS
- Provide an IEBCOPY feature

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