# GnuCOBOL Sample Programs

For Version 3.1 RC-1 [July2020]

Gary L. Cutler (cutlergl@gmail.com).
For updates Vincent B. Coen (vbcoen@gmail.com).

This manual documents GnuCOBOL 3.1 RC-1, July2020 build.

# Table of Contents

# 1.  FileStat-Msgs

The FileStat-Msgs.cpy copybook contains an EVALUATE statement to translate the two-digit file status codes that may be generated by file I/O statements.

The copybook assumes that the file status data item name is "STATUS" and the error message data item is named "MSG". By using the COPY statement's REPLACING clause, however, you may use the data names you wish, as follows:

```
COPY FileStat-Msgs
    REPLACING STATUS BY file-status-data-item-name
              MSG    BY error-message-data-item-name
```

Here's the FileStat-Msgs.cpy copybook:

```
EVALUATE STATUS
      WHEN 00 MOVE 'SUCCESS                 ' TO MSG
      WHEN 02 MOVE 'SUCCESS DUPLICATE       ' TO MSG
      WHEN 04 MOVE 'SUCCESS INCOMPLETE      ' TO MSG
      WHEN 05 MOVE 'SUCCESS OPTIONAL        ' TO MSG
      WHEN 07 MOVE 'SUCCESS NO UNIT         ' TO MSG
      WHEN 10 MOVE 'END OF FILE             ' TO MSG
      WHEN 14 MOVE 'OUT OF KEY RANGE        ' TO MSG
      WHEN 21 MOVE 'KEY INVALID             ' TO MSG
      WHEN 22 MOVE 'KEY EXISTS              ' TO MSG
      WHEN 23 MOVE 'KEY NOT EXISTS          ' TO MSG
      WHEN 30 MOVE 'PERMANENT ERROR         ' TO MSG
      WHEN 31 MOVE 'INCONSISTENT FILENAME   ' TO MSG
      WHEN 34 MOVE 'BOUNDARY VIOLATION      ' TO MSG
      WHEN 35 MOVE 'FILE NOT FOUND          ' TO MSG
      WHEN 37 MOVE 'PERMISSION DENIED       ' TO MSG
      WHEN 38 MOVE 'CLOSED WITH LOCK        ' TO MSG
      WHEN 39 MOVE 'CONFLICT ATTRIBUTE      ' TO MSG
      WHEN 41 MOVE 'ALREADY OPEN            ' TO MSG
      WHEN 42 MOVE 'NOT OPEN                ' TO MSG
      WHEN 43 MOVE 'READ NOT DONE           ' TO MSG
      WHEN 44 MOVE 'RECORD OVERFLOW         ' TO MSG
      WHEN 46 MOVE 'READ ERROR              ' TO MSG
      WHEN 47 MOVE 'INPUT DENIED            ' TO MSG
      WHEN 48 MOVE 'OUTPUT DENIED           ' TO MSG
      WHEN 49 MOVE 'I/O DENIED              ' TO MSG
      WHEN 51 MOVE 'RECORD LOCKED           ' TO MSG
      WHEN 52 MOVE 'END-OF-PAGE             ' TO MSG
      WHEN 57 MOVE 'I/O LINAGE              ' TO MSG
      WHEN 61 MOVE 'FILE SHARING FAILURE    ' TO MSG
      WHEN 91 MOVE 'FILE NOT AVAILABLE      ' TO MSG
   END-EVALUATE.
```

# 2. COBDUMP

COBDUMP is a useful little utility subroutine to produce a formatted hexadecimal and character dump of the data area passed to it.

If you follow the GnuCOBOL forums, you've undoubtedly heard about the CBL_OC_DUMP subroutine that was the winning entry in a GnuCOBOL programming contest. It's a great tool for producing data dumps, and it's now included in the official GnuCOBOL distributions.

For now though, I'll keep using my good ol' "COBDUMP" routine. It's been my travelling companion from COBOL job to COBOL job since 1971. Here it is, all tuned up for GnuCOBOL, with new tires and a fresh coat of paint.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Coding a GnuCOBOL subroutine

- Using "USAGE POINTER" data items

- Using the "ANY LENGTH" data item attribute

- Coding for an "OPTIONAL" subprogram argument

- Using the "NUMBER-OF-CALL-PARAMETERS" special register

- Using the "C$PRINTABLE" built-in system subroutine

The program source and cross-reference listing, produced using the GnuCOBOL Interactive Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the next page.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line    Statement                                                           Page: 1
====== ================================================================================
    1         >>SOURCE FORMAT IS FIXED
    2          IDENTIFICATION DIVISION.
    3          PROGRAM-ID.   COBDUMP.
    4         *>****************************************************************
    5         *> This is an OpenCOBOL subroutine that will generate a        **
    6         *> formatted Hex/Char dump of a storage area.  To use this     **
    7         *> subroutine, simply CALL it as follows:                      **
    8         *>                                                             **
    9         *> CALL "COBDUMP" USING <data-item>                            **
   10         *>                    [ <length> ]                            **
   11         *>                                                             **
   12         *> If specified, the <length> argument specifies how many      **
   13         *> bytes of <data-item> are to be dumped.  If absent, all of   **
   14         *> <data-item> will be dumped (i.e. LENGTH(<data-item>) will   **
   15         *> be assumed for <length>).                                   **
   16         *>                                                             **
   17         *> >>> Note that the subroutine name MUST be specified in  <<< **
   18         *> >>> UPPERCASE                                          <<< **
   19         *>                                                             **
   20         *> The dump is generated to STDERR, so you may pipe it to a    **
   21         *> file when you execute your program using "2> file".         **
   22         *>                                                             **
   23         *> AUTHOR:      GARY L. CUTLER                                 **
   24         *>                                                             **
   25         *> NOTE:        The author has a sentimental attachment to     **
   26         *>              this subroutine - it's been around since 1971 **
   27         *>              and it's been converted to and run on 10 dif- **
   28         *>              ferent operating system/compiler environments **
   29         *>                                                             **
   30         *> DATE-WRITTEN: October 14, 1971                              **
   31         *>                                                             **
   32         *>****************************************************************
   33         *>  DATE  CHANGE DESCRIPTION                                   **
   34         *> ====== ================================================== **
   35         *> GC1071 Initial coding - Univac Dept. of Defense COBOL '68   **
   36         *> GCO577 Converted to Univac ASCII COBOL (ACOB) - COBOL '74   **
   37         *> GC1182 Converted to Univac UTS4000 COBOL - COBOL '74 w/     **
   38         *>        SCREEN SECTION enhancements                          **
   39         *> GCO883 Converted to Honeywell/Bull COBOL - COBOL '74        **
   40         *> GCO983 Converted to IBM VS COBOL - COBOL '74                **
   41         *> GCO887 Converted to IBM VS COBOL II - COBOL '85             **
   42         *> GC1294 Converted to Micro Focus COBOL V3.0 - COBOL '85 w/   **
   43         *>        extensions                                           **
   44         *> GCO703 Converted to Unisys Universal Compiling System (UCS) **
   45         *>        COBOL (UCOB) - COBOL '85                             **
   46         *> GC1204 Converted to Unisys Object COBOL (OCOB) - COBOL 2002 **
   47         *> GCO609 Converted to OpenCOBOL 1.1 - COBOL '85 w/ some COBOL **
   48         *>        2002 features                                        **
   49         *> GCO410 Enhanced to make 2nd argument (buffer length)        **

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```

====== =========================================================================================
```
  50       *>      optional                                       **
  51       *> GC0211 Ported to IBM Enterprise COBOL               **
  52       *> GC0612 Updated for OpenCOBOL 2.0                     **
  53       *>****************************************************************
  54        ENVIRONMENT DIVISION.
  55        CONFIGURATION SECTION.
  56        REPOSITORY.
  57            FUNCTION ALL INTRINSIC.
  58        DATA DIVISION.
  59        WORKING-STORAGE SECTION.
  60        01  WS-Addr-PTR                       USAGE POINTER.
  61        01  WS-Addr-NUM REDEFINES WS-Addr-PTR
  62                                              USAGE BINARY-LONG.
  63
  64        01  WS-Addr-SUB                       USAGE BINARY-CHAR.
  65
  66        01  WS-Addr-Value-NUM                 USAGE BINARY-LONG.
  67
  68        01  WS-Buffer-Byte-CHR.
  69            05 WS-Buffer-Byte-NUM             USAGE BINARY-CHAR.
  70
  71        01  WS-Buffer-Length-NUM              USAGE BINARY-LONG.
  72
  73        01  WS-Buffer-SUB                     PIC 9(4) COMP-5.
  74
  75        01  WS-Hex-Digit-TXT VALUE '0123456789ABCDEF'.
  76            05 WS-Hex-Digit-CHR               OCCURS 16 TIMES
  77                                              PIC X(1).
  78
  79        01  WS-Nibble-SUB                     PIC 9(1) COMP-5.
  80
  81        01  WS-Nibble-Left-SUB               PIC 9(1) COMP-5.
  82
  83        01  WS-Nibble-Right-SUB              PIC 9(1) COMP-5.
  84
  85        01  WS-Output-Detail-TXT.
  86            05 WS-OD-Addr-TXT.
  87                10 WS-OD-Addr-Hex-CHR         OCCURS 8 TIMES PIC X.
  88            05 FILLER                         PIC X(1).
  89            05 WS-OD-Relative-Byte-NUM        PIC Z(3)9.
  90            05 FILLER                         PIC X(1).
  91            05 WS-OD-Hex-TXT                  OCCURS 16 TIMES.
  92               10 WS-OD-Hex-1-CHR             PIC X.
  93               10 WS-OD-Hex-2-CHR             PIC X.
  94               10 FILLER                      PIC X.
  95            05 WS-OD-ASCII-Data-TXT.
  96               10 WS-OD-ASCII-CHR             OCCURS 16 TIMES
  97                                              PIC X.
  98
```
====================================================================================================

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line   Statement                                                             Page: 3
====== ================================================================================
   99        01  WS-Output-SUB                      PIC 9(2) COMP-5.
  100
  101        >>SOURCE FORMAT IS FREE
  102        01  WS-Output-Header-1-TXT.
  103            05 VALUE '<-Addr-> Byte <--------------- Hexadecimal ''----------------> <---
     - Char ---->' PIC X(80).
  104
  105        01  WS-Output-Header-2-TXT.
  106            05 VALUE '======== ==== ============================================= ======
     ==========' PIC X(80).
  107        >>SOURCE FORMAT IS FIXED
  108
  109        LINKAGE SECTION.
  110        01  L-Buffer-TXT                       PIC X ANY LENGTH.
  111
  112        01  L-Buffer-Length-NUM                USAGE BINARY-LONG.
  113
  114        PROCEDURE DIVISION USING L-Buffer-TXT,
  115                              OPTIONAL L-Buffer-Length-NUM.
  116        000-Main SECTION.
  117            IF NUMBER-OF-CALL-PARAMETERS = 1
  118                MOVE LENGTH(L-Buffer-TXT) TO WS-Buffer-Length-NUM
  119            ELSE
  120                MOVE L-Buffer-Length-NUM  TO WS-Buffer-Length-NUM
  121            END-IF
  122            MOVE SPACES TO WS-Output-Detail-TXT
  123            SET WS-Addr-PTR TO ADDRESS OF L-Buffer-TXT
  124            PERFORM 100-Generate-Address
  125            MOVE 0 TO WS-Output-SUB
  126            DISPLAY WS-Output-Header-1-TXT UPON SYSERR
  127            DISPLAY WS-Output-Header-2-TXT UPON SYSERR
  128            PERFORM VARYING WS-Buffer-SUB FROM 1 BY 1
  129                    UNTIL WS-Buffer-SUB > WS-Buffer-Length-NUM
  130                ADD 1 TO WS-Output-SUB
  131                IF WS-Output-SUB = 1
  132                    MOVE WS-Buffer-SUB TO WS-OD-Relative-Byte-NUM
  133                END-IF
  134                MOVE L-Buffer-TXT (WS-Buffer-SUB : 1)
  135                  TO WS-OD-ASCII-CHR (WS-Output-SUB)
  136                     WS-Buffer-Byte-CHR
  137                DIVIDE WS-Buffer-Byte-NUM BY 16
  138                    GIVING WS-Nibble-Left-SUB
  139                    REMAINDER WS-Nibble-Right-SUB
  140                ADD 1 TO WS-Nibble-Left-SUB
  141                       WS-Nibble-Right-SUB
  142                MOVE WS-Hex-Digit-CHR (WS-Nibble-Left-SUB)
  143                  TO WS-OD-Hex-1-CHR  (WS-Output-SUB)
  144                MOVE WS-Hex-Digit-CHR (WS-Nibble-Right-SUB)
  145                  TO WS-OD-Hex-2-CHR  (WS-Output-SUB)

====== ================================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                                      C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line   Statement                                                                   Page: 4
====== =====================================================================================
   146                 IF WS-Output-SUB = 16
   147                     CALL "C$PRINTABLE" USING WS-OD-ASCII-Data-TXT
   148                     DISPLAY WS-Output-Detail-TXT UPON SYSERR
   149                     MOVE SPACES TO WS-Output-Detail-TXT
   150                     MOVE 0 TO WS-Output-SUB
   151                     SET WS-Addr-PTR UP BY 16
   152                     PERFORM 100-Generate-Address
   153                 END-IF
   154             END-PERFORM
   155             IF WS-Output-SUB > 0
   156                 CALL "C$PRINTABLE" USING WS-OD-ASCII-Data-TXT
   157                 DISPLAY WS-Output-Detail-TXT UPON SYSERR
   158             END-IF
   159             EXIT PROGRAM
   160             .
   161         100-Generate-Address SECTION.
   162             MOVE 8 TO WS-Addr-SUB
   163             MOVE WS-Addr-NUM TO WS-Addr-Value-NUM
   164             MOVE ALL '0' TO WS-OD-Addr-TXT
   165             PERFORM WITH TEST BEFORE UNTIL WS-Addr-Value-NUM = 0
   166                 DIVIDE WS-Addr-Value-NUM BY 16
   167                     GIVING WS-Addr-Value-NUM
   168                     REMAINDER WS-Nibble-SUB
   169                 ADD 1 TO WS-Nibble-SUB
   170                 MOVE WS-Hex-Digit-CHR (WS-Nibble-SUB)
   171                   TO WS-OD-Addr-Hex-CHR (WS-Addr-SUB)
   172                 SUBTRACT 1 FROM WS-Addr-SUB
   173             END-PERFORM
   174             .
```

```
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```

```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                          2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References        Page: 5
===============  ==============================  ======  ===============  ========================
COBDUMP          000-Main                        116 PROCEDURE
COBDUMP          100-Generate-Address            161 PROCEDURE          124     152
COBDUMP          L-Buffer-Length-NUM             112 LINKAGE            115     120
COBDUMP          L-Buffer-TXT                    110 LINKAGE            114     118     123
                                                                        134
COBDUMP          NUMBER-OF-CALL-PARAMETERS           PROCEDURE          117
COBDUMP          WS-Addr-NUM                      61 WORKING-STORAGE    163
COBDUMP          WS-Addr-PTR                      60 WORKING-STORAGE     61     123*    151*
COBDUMP          WS-Addr-SUB                      64 WORKING-STORAGE    162*    171     172
COBDUMP          WS-Addr-Value-NUM               66 WORKING-STORAGE    163*    165     166
                                                                        167*
COBDUMP          WS-Buffer-Byte-CHR              68 WORKING-STORAGE    136
COBDUMP          WS-Buffer-Byte-NUM              69 WORKING-STORAGE    137
COBDUMP          WS-Buffer-Length-NUM            71 WORKING-STORAGE    118*    120*    129
COBDUMP          WS-Buffer-SUB                   73 WORKING-STORAGE    128*    129     132
                                                                        134
COBDUMP          WS-Hex-Digit-CHR               76 WORKING-STORAGE    142     144     170
COBDUMP          WS-Hex-Digit-TXT               75 WORKING-STORAGE
COBDUMP          WS-Nibble-Left-SUB             81 WORKING-STORAGE    138*    140*    142
COBDUMP          WS-Nibble-Right-SUB            83 WORKING-STORAGE    139*    141*    144
COBDUMP          WS-Nibble-SUB                  79 WORKING-STORAGE    168*    169*    170
COBDUMP          WS-OD-Addr-Hex-CHR            87 WORKING-STORAGE    171*
COBDUMP          WS-OD-Addr-TXT               86 WORKING-STORAGE    164*
COBDUMP          WS-OD-ASCII-CHR              96 WORKING-STORAGE    135*
COBDUMP          WS-OD-ASCII-Data-TXT         95 WORKING-STORAGE    147C    156C
COBDUMP          WS-OD-Hex-1-CHR              92 WORKING-STORAGE    143*
COBDUMP          WS-OD-Hex-2-CHR              93 WORKING-STORAGE    145*
COBDUMP          WS-OD-Hex-TXT                91 WORKING-STORAGE
COBDUMP          WS-OD-Relative-Byte-NUM      89 WORKING-STORAGE    132*
COBDUMP          WS-Output-Detail-TXT         85 WORKING-STORAGE    122*    148     149*
                                                                        157
COBDUMP          WS-Output-Header-1-TXT      102 WORKING-STORAGE    126
COBDUMP          WS-Output-Header-2-TXT      105 WORKING-STORAGE    127
COBDUMP          WS-Output-SUB                99 WORKING-STORAGE    125*    130*    131
                                                                        135     143     145
                                                                        146     150*    155
```

```
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```

# 3. Colors

Colors is a handy little GnuCOBOL utility program that will produce a screen showing all possible combinations of:

- FOREGROUND-COLOR
- BACKGROUND-COLOR
- BLINKING (or absence of BLINKING)
- HIGHLIGHT, LOWLIGHT or absence of either (i.e. "Normal")
- REVERSE-VIDEO

Here is a sample of the screen generated by this program:



The program source and cross-reference listing, produced using the cobxref, begins on the next page.

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:16

    1           >>SOURCE FREE
    2    IDENTIFICATION DIVISION.
    3    PROGRAM-ID. colors.
    4    DATA DIVISION.
    5    WORKING-STORAGE SECTION.
    6    SCREEN SECTION.
    7    01 S-COLORTST-SCR BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLANK SCREEN.
    8    05 LINE 01.
    9    10 COL 1 VALUE ' LOWLIGHT  -------- HIGHLIGHT  LOWLIGHT  -------- HIGHLIGHT'.
   10    05 LINE + 1.
   11    10 COL 1 VALUE ' --------  --------  --------  --------  --------  --------'.
   12    05 LINE + 1.
   13    10 COL 1 VALUE ' --------  --------  --------   REVERSE   REVERSE   REVERSE'.
   14    05 LINE + 1.
   15    10 COL 1 VALUE ' 01234567  01234567  01234567  01234567  01234567  01234567'.
   16    05 LINE + 1.
   17    10 COL 1 VALUE '0         0         0         0         0         0        '.
   18    05 LINE + 1.
   19    10 COL 1 VALUE '1         1         1         1         1         1        '.
   20    05 LINE + 1.
   21    10 COL 1 VALUE '2         2         2         2         2         2        '.
   22    05 LINE + 1.
   23    10 COL 1 VALUE '3    1    3    2    3    3    3    4    3    5    3    6    '.
   24    05 LINE + 1.
   25    10 COL 1 VALUE '4         4         4         4         4         4        '.
   26    05 LINE + 1.
   27    10 COL 1 VALUE '5         5         5         5         5         5        '.
   28    05 LINE + 1.
   29    10 COL 1 VALUE '6         6         6         6         6         6        '.
   30    05 LINE + 1.
   31    10 COL 1 VALUE '7         7         7         7         7         7        '.
   32    05 LINE + 1.
   33    10 COL 1 VALUE ' LOWLIGHT  -------- HIGHLIGHT  LOWLIGHT  -------- HIGHLIGHT'.
   34    05 LINE + 1.
   35    10 COL 1 VALUE '   BLINK     BLINK     BLINK     BLINK     BLINK     BLINK'.
   36    05 LINE + 1.
   37    10 COL 1 VALUE ' --------  --------  --------   REVERSE   REVERSE   REVERSE'.
   38    05 LINE + 1.
   39    10 COL 1 VALUE ' 01234567  01234567  01234567  01234567  01234567  01234567'.
   40    05 LINE + 1.
   41    10 COL 1 VALUE '0         0         0         0         0         0        '.
   42    05 LINE + 1.
   43    10 COL 1 VALUE '1         1         1         1         1         1        '.
   44    05 LINE + 1.
   45    10 COL 1 VALUE '2         2         2         2         2         2        '.
   46    05 LINE + 1.
   47    10 COL 1 VALUE '3    7    3    8    3    9    3   10    3   11    3   12    '.
   48    05 LINE + 1.
   49    10 COL 1 VALUE '4         4         4         4         4         4        '.
   50    05 LINE + 1.
   51    10 COL 1 VALUE '5         5         5         5         5         5        '.
   52    05 LINE + 1.
   53    10 COL 1 VALUE '6         6         6         6         6         6        '.
   54    05 LINE + 1.
```

```
ACS Cobol Xref v2.02.02         Dictionary File for COLORS    07/12/2019  16:57:00:16
   55   10 COL 1 VALUE '7        7         7         7         7         7          '.
   56   *> #1
   57   05 LINE 05.
   58   10 COL 2   BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   59   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   60   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   61   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   62   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   63   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   64   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   65   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   66   05 LINE + 1.
   67   10 COL 2   BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   68   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   69   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   70   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   71   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   72   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   73   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   74   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   75   05 LINE + 1.
   76   10 COL 2   BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   77   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   78   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   79   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   80   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   81   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   82   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   83   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   84   05 LINE + 1.
   85   10 COL 2   BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   86   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   87   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   88   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   89   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   90   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   91   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   92   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   93   05 LINE + 1.
   94   10 COL 2   BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   95   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   96   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   97   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   98   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   99   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
  100   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
  101   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
  102   05 LINE + 1.
  103   10 COL 2   BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
  104   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
  105   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
  106   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
  107   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
  108   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:17

   109    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   110    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   111    05 LINE + 1.
   112    10 COL 2   BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   113    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   114    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   115    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   116    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   117    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   118    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   119    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   120    05 LINE + 1.
   121    10 COL 2   BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   122    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   123    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   124    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   125    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   126    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   127    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   128    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   129    *> #2
   130    05 LINE 05.
   131    10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 VALUE 'X'.
   132    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 VALUE 'X'.
   133    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 VALUE 'X'.
   134    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 VALUE 'X'.
   135    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 VALUE 'X'.
   136    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 VALUE 'X'.
   137    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 VALUE 'X'.
   138    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 VALUE 'X'.
   139    05 LINE + 1.
   140    10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 VALUE 'X'.
   141    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 VALUE 'X'.
   142    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 VALUE 'X'.
   143    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 VALUE 'X'.
   144    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 VALUE 'X'.
   145    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 VALUE 'X'.
   146    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 VALUE 'X'.
   147    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 VALUE 'X'.
   148    05 LINE + 1.
   149    10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 VALUE 'X'.
   150    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 VALUE 'X'.
   151    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 VALUE 'X'.
   152    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 VALUE 'X'.
   153    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 VALUE 'X'.
   154    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 VALUE 'X'.
   155    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 VALUE 'X'.
   156    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 VALUE 'X'.
   157    05 LINE + 1.
   158    10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 VALUE 'X'.
   159    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 VALUE 'X'.
   160    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 VALUE 'X'.
   161    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 VALUE 'X'.
   162    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:17
  163    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 VALUE 'X'.
  164    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 VALUE 'X'.
  165    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 VALUE 'X'.
  166    05 LINE + 1.
  167    10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 VALUE 'X'.
  168    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 VALUE 'X'.
  169    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 VALUE 'X'.
  170    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 VALUE 'X'.
  171    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 VALUE 'X'.
  172    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 VALUE 'X'.
  173    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 VALUE 'X'.
  174    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 VALUE 'X'.
  175    05 LINE + 1.
  176    10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 VALUE 'X'.
  177    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 VALUE 'X'.
  178    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 VALUE 'X'.
  179    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 VALUE 'X'.
  180    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 VALUE 'X'.
  181    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 VALUE 'X'.
  182    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 VALUE 'X'.
  183    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 VALUE 'X'.
  184    05 LINE + 1.
  185    10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 VALUE 'X'.
  186    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 VALUE 'X'.
  187    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 VALUE 'X'.
  188    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 VALUE 'X'.
  189    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 VALUE 'X'.
  190    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 VALUE 'X'.
  191    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 VALUE 'X'.
  192    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 VALUE 'X'.
  193    05 LINE + 1.
  194    10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 VALUE 'X'.
  195    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 VALUE 'X'.
  196    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 VALUE 'X'.
  197    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 VALUE 'X'.
  198    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 VALUE 'X'.
  199    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 VALUE 'X'.
  200    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 VALUE 'X'.
  201    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 VALUE 'X'.
  202    *> #3
  203    05 LINE 05.
  204    10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  205    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  206    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  207    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
  208    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  209    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  210    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  211    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  212    05 LINE + 1.
  213    10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  214    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  215    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  216    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:17
    217    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    218    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    219    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    220    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    221    05 LINE + 1.
    222    10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    223    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    224    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    225    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    226    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    227    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    228    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    229    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    230    05 LINE + 1.
    231    10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    232    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    233    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    234    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    235    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    236    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    237    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    238    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    239    05 LINE + 1.
    240    10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    241    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    242    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    243    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    244    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    245    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    246    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    247    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    248    05 LINE + 1.
    249    10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    250    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    251    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    252    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    253    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    254    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    255    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    256    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    257    05 LINE + 1.
    258    10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    259    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    260    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    261    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    262    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    263    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    264    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    265    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    266    05 LINE + 1.
    267    10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    268    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    269    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    270    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:18
    271   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    272   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    273   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    274   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    275   *> #4
    276   05 LINE 05.
    277   10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    278   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    279   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    280   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    281   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    282   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    283   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    284   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    285   05 LINE + 1.
    286   10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    287   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    288   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    289   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    290   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    291   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    292   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    293   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    294   05 LINE + 1.
    295   10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    296   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    297   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    298   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    299   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    300   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    301   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    302   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    303   05 LINE + 1.
    304   10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    305   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    306   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    307   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    308   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    309   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    310   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    311   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    312   05 LINE + 1.
    313   10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    314   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    315   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    316   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    317   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    318   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    319   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    320   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    321   05 LINE + 1.
    322   10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    323   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    324   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:18
   325    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   326    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   327    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   328    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   329    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   330    05 LINE + 1.
   331    10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   332    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   333    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   334    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   335    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   336    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   337    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   338    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   339    05 LINE + 1.
   340    10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   341    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   342    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   343    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   344    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   345    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   346    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   347    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   348    *> #5
   349    05 LINE 05.
   350    10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   351    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   352    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   353    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   354    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   355    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   356    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   357    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   358    05 LINE + 1.
   359    10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   360    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   361    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   362    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   363    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   364    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   365    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   366    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   367    05 LINE + 1.
   368    10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   369    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   370    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   371    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   372    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   373    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   374    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   375    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   376    05 LINE + 1.
   377    10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   378    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:18

    379    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    380    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    381    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    382    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    383    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    384    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    385    05 LINE + 1.
    386    10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    387    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    388    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    389    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    390    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    391    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    392    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    393    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    394    05 LINE + 1.
    395    10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    396    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    397    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    398    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    399    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    400    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    401    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    402    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    403    05 LINE + 1.
    404    10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    405    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    406    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    407    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    408    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    409    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    410    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    411    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    412    05 LINE + 1.
    413    10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    414    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    415    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    416    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    417    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    418    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    419    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    420    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    421    *> #6
    422    05 LINE 05.
    423    10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    424    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    425    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    426    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    427    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    428    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    429    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    430    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
    431    05 LINE + 1.
    432    10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
```

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   433    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   434    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   435    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   436    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   437    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   438    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   439    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   440    05 LINE + 1.
   441    10 COL 52  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   442    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   443    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   444    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   445    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   446    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   447    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   448    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   449    05 LINE + 1.
   450    10 COL 52  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   451    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   452    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   453    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   454    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   455    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   456    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   457    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   458    05 LINE + 1.
   459    10 COL 52  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   460    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   461    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   462    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   463    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   464    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   465    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   466    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   467    05 LINE + 1.
   468    10 COL 52  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   469    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   470    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   471    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   472    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   473    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   474    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   475    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   476    05 LINE + 1.
   477    10 COL 52  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   478    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   479    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   480    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   481    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   482    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   483    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   484    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   485    05 LINE + 1.
   486    10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02         Dictionary File for COLORS    07/12/2019  16:57:00:19

  487    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  488    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  489    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  490    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  491    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  492    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  493    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  494    *> #7
  495    05 LINE 17.
  496    10 COL 02  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  497    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  498    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  499    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  500    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  501    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  502    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  503    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  504    05 LINE + 1.
  505    10 COL 02  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  506    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  507    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  508    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  509    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  510    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  511    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  512    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  513    05 LINE + 1.
  514    10 COL 02  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  515    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  516    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  517    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  518    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  519    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  520    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  521    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  522    05 LINE + 1.
  523    10 COL 02  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  524    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  525    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  526    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  527    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  528    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  529    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  530    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  531    05 LINE + 1.
  532    10 COL 02  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  533    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  534    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  535    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  536    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  537    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  538    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  539    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  540    05 LINE + 1.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:19

541    10 COL 02  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
542    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
543    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
544    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
545    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
546    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
547    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
548    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
549    05 LINE + 1.
550    10 COL 02  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
551    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
552    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
553    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
554    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
555    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
556    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
557    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
558    05 LINE + 1.
559    10 COL 02  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
560    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
561    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
562    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
563    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
564    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
565    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
566    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
567    *> #8
568    05 LINE 17.
569    10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
570    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
571    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
572    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
573    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
574    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
575    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
576    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
577    05 LINE + 1.
578    10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
579    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
580    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
581    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
582    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
583    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
584    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
585    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
586    05 LINE + 1.
587    10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
588    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
589    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
590    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
591    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
592    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
593    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
594    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:19
   595   05 LINE + 1.
   596   10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   597   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   598   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   599   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   600   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   601   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   602   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   603   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   604   05 LINE + 1.
   605   10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   606   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   607   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   608   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   609   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   610   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   611   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   612   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   613   05 LINE + 1.
   614   10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   615   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   616   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   617   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   618   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   619   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   620   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   621   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   622   05 LINE + 1.
   623   10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   624   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   625   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   626   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   627   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   628   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   629   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   630   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   631   05 LINE + 1.
   632   10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   633   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   634   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   635   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   636   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   637   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   638   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   639   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   640   *> #9
   641   05 LINE 17.
   642   10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   643   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   644   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   645   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   646   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   647   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   648   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS      07/12/2019  16:57:00:20
   649   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   650   05 LINE + 1.
   651   10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   652   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   653   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   654   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   655   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   656   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   657   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   658   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   659   05 LINE + 1.
   660   10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   661   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   662   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   663   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   664   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   665   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   666   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   667   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   668   05 LINE + 1.
   669   10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   670   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   671   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   672   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   673   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   674   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   675   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   676   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   677   05 LINE + 1.
   678   10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   679   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   680   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   681   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   682   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   683   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   684   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   685   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   686   05 LINE + 1.
   687   10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   688   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   689   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   690   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   691   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   692   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   693   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   694   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   695   05 LINE + 1.
   696   10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   697   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   698   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   699   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   700   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   701   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   702   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:20
 703   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
 704   05 LINE + 1.
 705   10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
 706   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
 707   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
 708   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
 709   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
 710   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
 711   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
 712   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
 713   *> #10
 714   05 LINE 17.
 715   10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 716   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 717   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 718   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 719   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 720   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 721   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 722   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 723   05 LINE + 1.
 724   10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 725   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 726   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 727   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 728   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 729   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 730   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 731   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 732   05 LINE + 1.
 733   10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 734   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 735   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 736   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 737   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 738   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 739   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 740   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 741   05 LINE + 1.
 742   10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 743   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 744   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 745   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 746   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 747   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 748   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 749   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 750   05 LINE + 1.
 751   10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 752   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 753   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 754   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 755   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 756   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:20

    757    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    758    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    759    05 LINE + 1.
    760    10 COL 32  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    761    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    762    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    763    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    764    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    765    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    766    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    767    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    768    05 LINE + 1.
    769    10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    770    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    771    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    772    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    773    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    774    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    775    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    776    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    777    05 LINE + 1.
    778    10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    779    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    780    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    781    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    782    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    783    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    784    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    785    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    786    *> #11
    787    05 LINE 17.
    788    10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
    789    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
    790    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
    791    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
    792    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
    793    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
    794    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
    795    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
    796    05 LINE + 1.
    797    10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
    798    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
    799    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
    800    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
    801    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
    802    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
    803    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
    804    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
    805    05 LINE + 1.
    806    10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
    807    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
    808    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
    809    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
    810    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02         Dictionary File for COLORS     07/12/2019  16:57:00:21

  811    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  812    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  813    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  814    05 LINE + 1.
  815    10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  816    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  817    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  818    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  819    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  820    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  821    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  822    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  823    05 LINE + 1.
  824    10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  825    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  826    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  827    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  828    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  829    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  830    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  831    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  832    05 LINE + 1.
  833    10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  834    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  835    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  836    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  837    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  838    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  839    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  840    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  841    05 LINE + 1.
  842    10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  843    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  844    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  845    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  846    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  847    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  848    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  849    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  850    05 LINE + 1.
  851    10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  852    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  853    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  854    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  855    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  856    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  857    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  858    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  859    *> #12
  860    05 LINE 17.
  861    10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  862    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  863    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  864    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:21

 865   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 866   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 867   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 868   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 869   05 LINE + 1.
 870   10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 871   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 872   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 873   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 874   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 875   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 876   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 877   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 878   05 LINE + 1.
 879   10 COL 52  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 880   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 881   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 882   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 883   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 884   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 885   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 886   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 887   05 LINE + 1.
 888   10 COL 52  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 889   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 890   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 891   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 892   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 893   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 894   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 895   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 896   05 LINE + 1.
 897   10 COL 52  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 898   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 899   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 900   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 901   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 902   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 903   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 904   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 905   05 LINE + 1.
 906   10 COL 52  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 907   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 908   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 909   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 910   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 911   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 912   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 913   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 914   05 LINE + 1.
 915   10 COL 52  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 916   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 917   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
 918   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:21

   919   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   920   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   921   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   922   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   923   05 LINE + 1.
   924   10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   925   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   926   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   927   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   928   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   929   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   930   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   931   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   932   PROCEDURE DIVISION.
   933   000-Main SECTION.
   934    DISPLAY S-COLORTST-SCR.
   935    STOP RUN.
   936       *>>>Info: Total Copy Depth Used = 01
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019   16:57:00:22
Symbols of Module: COLORS (COLORS)
--------------------------------

Data Section (SCREEN)          Defn    Locations
-----------------------------+---------------------------------------------------------------

S-COLORTST-SCR                 000007S  000934
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS   07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
---------------------------------
Procedure                    Defn    Locations
------------------------------+-------------------------------------------------------------

None
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
---------------------------------
Unreferenced Working Storage Symbols

None
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
----------------------------------
Unreferenced Procedures

None
```

# 4.  DAY-FROM-DATE

DAY-FROM-DATE is a user-defined function that accepts a single numeric `"USAGE DISPLAY"` argument –æ either a 7-digit Julian date in the form *yyyyddd* or an 8-digit Gregorian date in the form *yyyymmdd*. This argument may be supplied either as a PIC 9(n) USAGE DISPLAY data item (n=7 or 8) or as a 7- or 8-digit numeric literal.

The subroutine will determine if the supplied date is a valid date in the year range 0000 through 9999 and what day of the week that date fell on.

The value returned will be zero if the date argument was invalid or an integer in the range 1-7, representing Sunday through Saturday.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Coding a GnuCOBOL user-defined function

- Using the `"ANY LENGTH"` data item attribute

- Using the `"RETURNING"` option in a subprogram

- Using the `"DATE-OF-INTEGER"` intrinsic function

- Using the `"C$PARAMSIZE"` built-in system subroutine

The program source and cross-reference listing, produced using the GnuCOBOL Interactive Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the next page.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                         C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
Line   Statement                                                              Page: 1
====== ================================================================================
     1         >>SOURCE FORMAT IS FIXED
     2          IDENTIFICATION DIVISION.
     3          FUNCTION-ID. DAY-FROM-DATE.
     4         *>***************************************************************
     5         *> This GNU COBOL user-defined function converts a Gregorian or **
     6         *> Julian date into a numeric day of the week.              **
     7         *>***************************************************************
     8         *> Arguments:                                               **
     9         *>                                                          **
    10         *> Calendar-Date    A PIC 9 data item or numeric literal which **
    11         *>                  will be treated as a calendar date as fol- **
    12         *>                  lows:                                   **
    13         *>                                                          **
    14         *>                    7-digit value: Interpreted as a Julian date **
    15         *>                                   in the form yyyyddd    **
    16         *>                    8-digit value: Interpreted as a Gregorian **
    17         *>                                   date in the form yyyymmdd **
    18         *>                                                          **
    19         *> The result returned will be one of the following:       **
    20         *>                                                          **
    21         *> 0:  The supplied date is invalid                        **
    22         *> 1:  The supplied date is a Sunday                       **
    23         *> 2:  The supplied date is a Monday                       **
    24         *> .                                                       **
    25         *> .                                                       **
    26         *> .                                                       **
    27         *> 7:  The supplied date is a Saturday                     **
    28         *>***************************************************************
    29          ENVIRONMENT DIVISION.
    30          CONFIGURATION SECTION.
    31          REPOSITORY.
    32              FUNCTION ALL INTRINSIC.
    33          DATA DIVISION.
    34          WORKING-STORAGE SECTION.
    35          01  WS-Input-Date-DT.
    36              05 WS-ID-YYYY-NUM                  PIC 9(4).
    37              05 WS-ID-MM-NUM                    PIC 9(2).
    38              05 WS-ID-DD-NUM                    PIC 9(2).
    39          01  WS-Y-NUM                          BINARY-LONG.
    40          01  WS-M-NUM                          BINARY-LONG.
    41          01  WS-Temp-NUM                       BINARY-LONG.
    42          LINKAGE SECTION.
    43          01  L-Input-Date-DT                   PIC 9 ANY LENGTH.
    44          01  L-Output-Day-NUM                  USAGE BINARY-LONG
    45                                                SIGNED.
    46          PROCEDURE DIVISION USING L-Input-Date-DT
    47                      RETURNING L-Output-Day-NUM.
    48          000-Main SECTION.
    49              CALL "C$PARAMSIZE" USING 1

====== ================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                     Page: 1
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                           C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
Line    Statement                                                              Page: 2
======  =================================================================================
    50            EVALUATE RETURN-CODE
    51            WHEN 7
    52                IF TEST-DAY-YYYYDDD(L-Input-Date-DT) > 0
    53                    MOVE 0 TO L-Output-Day-NUM
    54                    GOBACK
    55                END-IF
    56                MOVE DATE-OF-INTEGER(INTEGER-OF-DAY(L-Input-Date-DT))
    57                  TO WS-Input-Date-DT
    58            WHEN 8
    59                IF TEST-DATE-YYYYMMDD(L-Input-Date-DT) > 0
    60                    MOVE 0 TO L-Output-Day-NUM
    61                    GOBACK
    62                END-IF
    63                MOVE L-Input-Date-DT TO WS-Input-Date-DT
    64            WHEN OTHER
    65                MOVE 0 TO L-Output-Day-NUM
    66                GOBACK
    67            END-EVALUATE
    68      *> IF january OR february
    69      *>    y = year - 1
    70      *>    m = month + 10
    71      *> ELSE
    72      *>    y = year
    73      *>    m = month - 2
    74      *> END-IF
    75      *> For Gregorian calendar:
    76      *>    result = (day + y + y/4 - y/100 + y/400 + (31*m)/12) mod 7
    77      *> (All divisions are integer divisions, discarding any remainder)
    78            IF WS-ID-MM-NUM = 1 OR 2
    79                SUBTRACT 1 FROM WS-ID-YYYY-NUM GIVING WS-Y-NUM
    80                ADD WS-ID-MM-NUM, 10 GIVING WS-M-NUM
    81            ELSE
    82                MOVE WS-ID-YYYY-NUM TO WS-Y-NUM
    83                SUBTRACT 2 FROM WS-ID-MM-NUM GIVING WS-M-NUM
    84            END-IF
    85            COMPUTE L-Output-Day-NUM =
    86                WS-ID-DD-NUM
    87              + WS-Y-NUM
    88              + INTEGER(WS-Y-NUM/4)
    89              - INTEGER(WS-Y-NUM/100)
    90              + INTEGER(WS-Y-NUM/400)
    91              + INTEGER((31*WS-M-NUM)/12)
    92            DIVIDE L-Output-Day-NUM BY 7
    93                GIVING WS-Temp-NUM
    94                REMAINDER L-Output-Day-NUM
    95            ADD 1 TO L-Output-Day-NUM
    96            GOBACK
    97            .
    98
```

```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                        2014/03/27
                          C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References        Page: 3
==============  ==============================  ====== ===============  ========================
DAY-FROM-DATE   000-Main                        48 PROCEDURE
DAY-FROM-DATE   L-Input-Date-DT                 43 LINKAGE             46     52      56
                                                                      59     63
DAY-FROM-DATE   L-Output-Day-NUM                44 LINKAGE            47     53*     60*
                                                                      65*    85*     92
                                                                      94*    95*
DAY-FROM-DATE   RETURN-CODE                        PROCEDURE           50
DAY-FROM-DATE   WS-ID-DD-NUM                    38 WORKING-STORAGE     86
DAY-FROM-DATE   WS-ID-MM-NUM                    37 WORKING-STORAGE     78     80      83
DAY-FROM-DATE   WS-ID-YYYY-NUM                  36 WORKING-STORAGE     79     82
DAY-FROM-DATE   WS-Input-Date-DT                35 WORKING-STORAGE     57*    63*
DAY-FROM-DATE   WS-M-NUM                        40 WORKING-STORAGE     80*    83*     91
DAY-FROM-DATE   WS-Temp-NUM                     41 WORKING-STORAGE     93*
DAY-FROM-DATE   WS-Y-NUM                        39 WORKING-STORAGE     79*    82*     87
                                                                      88     89      90
```

```
===============================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                           Page: 3
```

# 5. GCic

This is MUCH more than a mere demonstration program – it's also a very practical utility! The "GCic" (GnuCOBOL Interactive Compiler) is a TUI (Textual User Interface) program that may be used as a full-screen interface to the "cobc" compiler. In addition, GCic can produce neat, concise and useful cross-reference listings of GnuCOBOL programs, showing not only where user-defined names and built-in registers and intrinsic functions are referenced, but also where user-defined data items ARE MODIFIED by program code!

The program is well documented (IMHO) and you should find it fairly easy to follow. The GCic.cbl program was written to work with a native Windows or Windows/MinGW build of GnuCOBOL as well as a Windows/Cygwin, UNIX or OS X build.

Source listings generated by GCic will show the original source code of your programs, with all indentation and comments preserved. Additionally, any COPYed code will be included in the listing immediately (in compressed form) following the COPY statement that triggered its inclusion into your program.

Cross-reference listings will show all user-defined data items and procedures as well as intrinsic function and special register references. In addition to showing the line numbers at which items were defined and referenced, those references that MODIFY the contents of the data item will have an asterisk appended to them.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Creating a GnuCOBOL compilation unit that consists of multiple programs
- Using CDF conditional compilation facilities
- Using the `"SCREEN SECTION"` and associated `"ACCEPT"` and `"DISPLAY"` statements
- Using `"DECLARATIVES"` to trap file I/O errors
- Using `"FILE-STATUS"`
- Using the `"REPLACING"` clause on a CDF `"COPY"` statement
- Using the following statements:

    o `"ACCEPT FROM COMMAND-LINE"` statement

    o `"ACCEPT FROM DATE/TIME"` statement

    o `"ACCEPT FROM ENVIRONMENT"` statement

    o `"EXIT PERFORM"` statement

    o `"EXIT SECTION"` statement

    o `"INSPECT"` statement

    o `"PERFORM FOREVER"` statement

- o "SEARCH ALL" statement

- o "SET ENVIRONMENT" statement

- o "SORT" statement

- o "STRING" statement

- o "UNSTRING" statement

- Using the following built-in subroutines:

  - o "C$JUSTIFY" built-in system subroutine

  - o "C$SLEEP" built-in system subroutine

  - o "CBL_CHANGE_DIR" built-in system subroutine

  - o "CBL_CHECK_FILE_EXIST" built-in system subroutine

  - o "CBL_DELETE_FILE" built-in system subroutine

  - o "SYSTEM" built-in system subroutine

- Using the following intrinsic functions:

  - o "CONCATENATE" intrinsic function

  - o "LENGTH" intrinsic function

  - o "LOWER-CASE" intrinsic function

  - o "NUMVAL" intrinsic function

  - o "TRIM" intrinsic function

  - o "UPPER-CASE" intrinsic function

- Using the "COB-CRT-STATUS,Special Registers" special register

- Programmatically producing a report destined for either portrait or landscape printing

Here is a sample of the screen generated by this program:



The program source and cross-reference listing, produced using this program, begins on the next page.

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                     2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 1
====== =================================================================================
    1         >>SOURCE FORMAT IS FIXED
    2         *> CONFIGURATION SETTINGS: Set these switches before compiling:
    3         *>
    4         *> LINEDRAW Set to:
    5         *>    0   To use spaces (no lines)
    6         *>    1   To use the line-drawing characterset (PC codepage 437)
    7         *>    2   To use conventional ASCII characters (+, -, |)
    8         *>
    9         *>          OSX USERS - To use the linedrawing characterset,
   10         *>                     set your 'terminal' font to 'Lucida Console'
   11         *>
   12         *> OS       Set to one of the following:
   13         *>          'CYGWIN'   For a Windows/Cygwin version
   14         *>          'MINGW'    For a Windows/MinGW version
   15         *>          'OSX'      For a Macintosh OSX version
   16         *>          'UNIX'     For a Unix/Linux version
   17         *>          'WINDOWS'  For a Native Windows version
   18         *>
   19         *> SELCHAR  Set to the desired single character to be used as the red
   20         *>          'feature selected' character on the screen.
   21         *>          SUGGESTIONS: '>', '*', '=', '+'
   22         *>
   23         *> LPP      Set to maximum printable lines per page when the listing
   24         *>          should be generated for LANDSCAPE orientation (can be over-
   25         *>          ridden at execution time using the GCXREF_LINES environment
   26         *>          variable.
   27         *>
   28         *> LPPP     Set to maximum printable lines per page when the listing
   29         *>          should be generated for PORTRAIT orientation (can be over-
   30         *>          ridden at execution time using the GCXREF_LINES_PORT
   31         *>          environment variable.
   32         *>
   33         *>****************************************************************
   34         *>**  Change the settings in the copy book const-set-1.cpy to reflect
   35         *>    your system set up. This notes are also present there.
   36         *>    This is to reduce the need to amend these every time a update
   37         *>    for GCic occurs.
   38         *>****************************************************************
   39         *>
   40          copy "const-set-1.cpy".
   41         *>
   42         *> ------------------------------------------------------------
   43         *> END CONFIGURATION SETTINGS
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 2
====== =======================================================================
    45       IDENTIFICATION DIVISION.
    46       PROGRAM-ID. GCic.
    47       *>****************************************************************
    48       *>    >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<    **
    49       *>                                                          **
    50       *> If this program is compiled with '-fdebugging-line', you  **
    51       *> will need to pipe SYSERR to a text file when executing GCic **
    52       *> (by adding the text '2> filename' to the end of the GCic   **
    53       *> command).  You may also need to press the ENTER key when   **
    54       *> GCic is finished.                                        **
    55       *>****************************************************************
    56       *> This program provides a Textual User Interface (TUI) to the **
    57       *> process of compiling and (optionally) executing a GNU COBOL **
    58       *> program.                                                 **
    59       *>                                                          **
    60       *> This programs execution syntax is as follows:            **
    61       *>                                                          **
    62       *> GCic <program-path-and-filename> [ <switch>... ]         **
    63       *>                                                          **
    64       *> Once executed, a display screen will be presented showing **
    65       *> the compilation options that will be used.  The user will **
    66       *> have the opportunity to change options, specify new ones  **
    67       *> and specify any program execution arguments to be used if  **
    68       *> you select the 'Execute' option.  When you press the Enter **
    69       *> key the program will be compiled.                         **
    70       *>                                                          **
    71       *> The SCREEN SECTION contains an image of the screen.       **
    72       *>                                                          **
    73       *> The '010-Parse-Args' section in the PROCEDURE DIVISION has **
    74       *> documentation on switches and their function.             **
    75       *>****************************************************************
    76       *>                                                          **
    77       *> AUTHOR:      GARY L. CUTLER                              **
    78       *>             Copyright (C) 2009-2017, Gary L. Cutler, GPL  **
    79       *>                                                          **
    80       *> DATE-WRITTEN: June 14, 2009                              **
    81       *>                                                          **
    82       *>****************************************************************
    83       *>  DATE   CHANGE DESCRIPTION                               **
    84       *> ====== =================================================== **
    85       *> GC0609 Don't display compiler messages file if compilation **
    86       *>  GLC   Is successful.  Also don't display messages if the  **
    87       *>        output file is busy (just put a message on the      **
    88       *>        screen, leave the OC screen up & let the user fix   **
    89       *>        the problem & resubmit.                            **
    90       *> GC0709 When 'EXECUTE' is selected, a 'FILE BUSY' error will **
    91       *>  CLC   still cause the (old) executable to be launched.    **
    92       *>        Also, the 'EXTRA SWITCHES' field is being ignored.  **
    93       *>        Changed the title bar to lowlighted reverse video & **
    94       *>        the message area to highlighted reverse-video.      **
    95       *> GC0809 Add a SPACE in front of command-line args when      **
    96       *>  GLC   executing users program.  Add a SPACE after the     **
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 3
======  ===========================================================================
    97      *>       -ftraceall switch when building cobc command.    **
    98      *> GC0909 Convert to work on Cygwin/Linux as well as MinGW   **
    99      *> GC0310 Virtualized the key codes for S-F1 thru S-F7 as they **
   100      *>   GLC  differ depending upon whether PDCurses or NCurses is **
   101      *>       being used.                                       **
   102      *> GC0410 Introduced the cross-reference and source listing  **
   103      *>   GLC  features.  Also fixed a bug in EXTRA switch proces- **
   104      *>       sing where garbage will result if more than the    **
   105      *>       EXTRA switch is specified.                         **
   106      *> GC1010 Corrected several problems reported by Vince Coen:  **
   107      *>   GLC  1) Listing/Xref wouldn't work if '-I' additional  **
   108      *>          cobc switch specified.                          **
   109      *>       2) Programs coded with lowercase reserved words did **
   110      *>          not get parsed properly when generating listing **
   111      *>          and/or xref reports.                            **
   112      *>       3) Reliance on a TEMP environment variable caused  **
   113      *>          non-recoverable errors when generating listing  **
   114      *>          and/or xref reports in a session that lacks a   **
   115      *>          TEMP variable.                                  **
   116      *>       As a result of this change, GCic no longer runs a  **
   117      *>       second 'cobc' when generating listing and/or xref  **
   118      *>       reports.  A '-save-temps' (without '=dir') specified **
   119      *>       in the EXTRA options field will be ignored.  A     **
   120      *>       '-save-temps=dir' specified in the EXTRA options   **
   121      *>       field will negate both the XREF and SOURCE opts,   **
   122      *>       if specified.                                      **
   123      *> GC0711 Tailored for 29APR2011 version of GNU COBOL 2.0   **
   124      *> GC0712 Replaced all switches with configuration settings; **
   125      *>   GLC  Tailored for 11FEB2012 version of GNU COBOL 2.0;  **
   126      *>       Reformatted screen layout to fit a 24x80 screen    **
   127      *>       rather than a 25x81 screen and to accommodate shell **
   128      *>       environments having only F1-F12 (like 'terminal' in **
   129      *>       OSX); Fully tested under OSX (required a few altera- **
   130      *>       tions); Expanded both extra-options and runtime-   **
   131      *>       arguments areas to TWO lines (152 chars total) each; **
   132      *>       Added support for MF/IBM/BS2000 listing-control    **
   133      *>       directives EJECT,SKIP1,SKIP2,SKIP3 (any of these in **
   134      *>       copybooks will be ignored)                         **
   135      *> GC0313 Expand the source code record from 80 chars to 256 **
   136      *>   GLC  to facilitate looking for "LINKAGE SECTION" in a   **
   137      *>       free-format file.                                   **
   138      *> GC1113 Edited to support the change of "OpenCOBOL" to "GNU **
   139      *>   GLC  COBOL"                                            **
   140      *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1    **
   141      *> GC0114 Introduce a "Press ENTER to Close" action after run- **
   142      *>   GLC  ning the compiled program in the compiler window (F4)**
   143      *> VC0617 Remove the Blinking in meny screen as uncomfortable **
   144      *>   VBC  Update version printed to 2.2 30JUN2017.          **
   145      *>       Move the system constant settings to a copy file   **
   146      *>       const-set-1.cpy  in case GCic is updated.          **
   147      *>       Added  SET ENVIRONMENT "COB_EXIT_WAIT" TO "0" to    **
   148      *>       100-Initialization section.                        **
   149      *> VC0717 Replaced compile param instrinsic=all with        **
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                                  Page: 4
====== ================================================================================
   150      *>  VBC   intrinstics=ALL. Changed mod detail inits for Gary    **
   151      *>        from GCL to GLC.                                       **
   152      *>        Update version printed to 2.2 20JUL2017.              **
   153      *>        Should really get this from the compiler if avail?    **
   154      *> VC1217 Update compiler version to v3.0 24DEC2017.            **
   155      *>        and copyright to 2018 (in 3 places).                  **
   156      *>**************************************************************
   157      *>
   158       ENVIRONMENT DIVISION.
   159       CONFIGURATION SECTION.
   160       REPOSITORY.
   161           FUNCTION ALL INTRINSIC.
   162       INPUT-OUTPUT SECTION.
   163       FILE-CONTROL.
   164 GC1010    SELECT F-Cobc-Output-FILE   ASSIGN TO WS-Listing-Filename-TXT
   165                                        ORGANIZATION IS LINE SEQUENTIAL.
   166
   167           SELECT F-Source-Code-FILE   ASSIGN TO WS-File-Name-TXT
   168                                        ORGANIZATION IS LINE SEQUENTIAL
   169                                        FILE STATUS IS WS-FSM-Status-CD.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 5
====== ================================================================================

   171        DATA DIVISION.
   172        FILE SECTION.
   173        FD  F-Cobc-Output-FILE.
   174        01  F-Cobc-Output-REC              PIC X(256).
   175
   176        FD  F-Source-Code-FILE.
   177 GC0313 01  F-Source-Code-REC              PIC X(256).
   178
   179        WORKING-STORAGE SECTION.
   180        >>source free
   181        COPY screenio.
          78 COB-COLOR-BLACK VALUE 0.
          78 COB-COLOR-BLUE VALUE 1.
          78 COB-COLOR-GREEN VALUE 2.
          78 COB-COLOR-CYAN VALUE 3.
          78 COB-COLOR-RED VALUE 4.
          78 COB-COLOR-MAGENTA VALUE 5.
          78 COB-COLOR-YELLOW VALUE 6.
          78 COB-COLOR-WHITE VALUE 7.
          78 COB-SCR-OK VALUE 0.
          78 COB-SCR-F1 VALUE 1001.
          78 COB-SCR-F2 VALUE 1002.
          78 COB-SCR-F3 VALUE 1003.
          78 COB-SCR-F4 VALUE 1004.
          78 COB-SCR-F5 VALUE 1005.
          78 COB-SCR-F6 VALUE 1006.
          78 COB-SCR-F7 VALUE 1007.
          78 COB-SCR-F8 VALUE 1008.
          78 COB-SCR-F9 VALUE 1009.
          78 COB-SCR-F10 VALUE 1010.
          78 COB-SCR-F11 VALUE 1011.
          78 COB-SCR-F12 VALUE 1012.
          78 COB-SCR-F13 VALUE 1013.
          78 COB-SCR-F14 VALUE 1014.
          78 COB-SCR-F15 VALUE 1015.
          78 COB-SCR-F16 VALUE 1016.
          78 COB-SCR-F17 VALUE 1017.
          78 COB-SCR-F18 VALUE 1018.
          78 COB-SCR-F19 VALUE 1019.
          78 COB-SCR-F20 VALUE 1020.
          78 COB-SCR-F21 VALUE 1021.
          78 COB-SCR-F22 VALUE 1022.
          78 COB-SCR-F23 VALUE 1023.
          78 COB-SCR-F24 VALUE 1024.
          78 COB-SCR-F25 VALUE 1025.
          78 COB-SCR-F26 VALUE 1026.
          78 COB-SCR-F27 VALUE 1027.
          78 COB-SCR-F28 VALUE 1028.
          78 COB-SCR-F29 VALUE 1029.
          78 COB-SCR-F30 VALUE 1030.
          78 COB-SCR-F31 VALUE 1031.
          78 COB-SCR-F32 VALUE 1032.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 6
====== =================================================================================
        78 COB-SCR-F33 VALUE 1033.
        78 COB-SCR-F34 VALUE 1034.
        78 COB-SCR-F35 VALUE 1035.
        78 COB-SCR-F36 VALUE 1036.
        78 COB-SCR-F37 VALUE 1037.
        78 COB-SCR-F38 VALUE 1038.
        78 COB-SCR-F39 VALUE 1039.
        78 COB-SCR-F40 VALUE 1040.
        78 COB-SCR-F41 VALUE 1041.
        78 COB-SCR-F42 VALUE 1042.
        78 COB-SCR-F43 VALUE 1043.
        78 COB-SCR-F44 VALUE 1044.
        78 COB-SCR-F45 VALUE 1045.
        78 COB-SCR-F46 VALUE 1046.
        78 COB-SCR-F47 VALUE 1047.
        78 COB-SCR-F48 VALUE 1048.
        78 COB-SCR-F49 VALUE 1049.
        78 COB-SCR-F50 VALUE 1050.
        78 COB-SCR-F51 VALUE 1051.
        78 COB-SCR-F52 VALUE 1052.
        78 COB-SCR-F53 VALUE 1053.
        78 COB-SCR-F54 VALUE 1054.
        78 COB-SCR-F55 VALUE 1055.
        78 COB-SCR-F56 VALUE 1056.
        78 COB-SCR-F57 VALUE 1057.
        78 COB-SCR-F58 VALUE 1058.
        78 COB-SCR-F59 VALUE 1059.
        78 COB-SCR-F60 VALUE 1060.
        78 COB-SCR-F61 VALUE 1061.
        78 COB-SCR-F62 VALUE 1062.
        78 COB-SCR-F63 VALUE 1063.
        78 COB-SCR-F64 VALUE 1064.
        78 COB-SCR-PAGE-UP VALUE 2001.
        78 Cob-Scr-Page_Up value 2001.
        78 COB-SCR-PAGE-DOWN VALUE 2002.
        78 Cob-Scr-Page_Down value 2002.
        78 COB-SCR-KEY-UP VALUE 2003.
        78 COB-SCR-KEY_UP VALUE 2003.
        78 COB-SCR-KEY-DOWN VALUE 2004.
        78 COB-SCR-KEY_DOWN VALUE 2004.
        78 COB-SCR-ESC VALUE 2005.
        78 COB-SCR-PRINT VALUE 2006.
        78 COB-SCR-TAB VALUE 2007.
        78 COB-SCR-BACK-TAB VALUE 2008.
        78 COB-SCR-KEY-LEFT VALUE 2009.
        78 COB-SCR-KEY-RIGHT VALUE 2010.
        78 COB-SCR-INSERT VALUE 2011.
        78 COB-SCR-DELETE VALUE 2012.
        78 COB-SCR-BACKSPACE VALUE 2013.
        78 COB-SCR-KEY-HOME VALUE 2014.
        78 COB-SCR-KEY-END VALUE 2015.
        78 COB-SCR-NO-FIELD VALUE 8000.
        78 COB-SCR-TIME-OUT VALUE 8001.
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 6
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 7
====== ===========================================================================
        78 COB-SCR-FATAL VALUE 9000.
        78 COB-SCR-MAX-FIELD VALUE 9001.
   182        >>source fixed
   183 GC0712 01  WS-Compilation-Switches-TXT.
   184 GC0712     05 WS-CS-Args-TXT VALUE SPACES.
   185 GC0712        10 WS-CS-Arg-H1-TXT                PIC X(76).
   186 GC0712        10 WS-CS-Arg-H2-TXT                PIC X(76).
   187 GC0712     05 WS-CS-Filenames-TXT.
   188 GC0712        10 VALUE 'BS2000'                  PIC X(9).
   189 GC0712        10 VALUE 'COBOL85'                 PIC X(9).
   190 GC0712        10 VALUE 'COBOL2002'               PIC X(9).
   191 GC0712        10 VALUE 'DEFAULT'                 PIC X(9).
   192 GC0712        10 VALUE 'IBM'                     PIC X(9).
   193 GC0712        10 VALUE 'MF'                      PIC X(9).
   194 GC0712        10 VALUE 'MVS'                     PIC X(9).
   195 GC0712     05 WS-CS-Filenames-Table-TXT REDEFINES WS-CS-Filenames-TXT.
   196 GC0712        10 WS-CS-Filename-TXT              OCCURS 7 TIMES
   197 GC0712                                           PIC X(9).
   198 GC0712 >>IF F12 < 1
   199 GC0712     05 WS-CS-Config-NUM     VALUE 4     PIC 9(1).
   200 GC0712 >>ELIF F12 > 7
   201 GC0712     05 WS-CS-Config-NUM     VALUE 4     PIC 9(1).
   202 GC0712 >>ELSE
   203 GC0712     05 WS-CS-Config-NUM     VALUE F12   PIC 9(1).
   204 GC0712 >>END-IF
   205 GC0712     05 WS-CS-Extra-TXT VALUE SPACES.
   206 GC0712        10 WS-CS-Extra-H1-TXT             PIC X(76).
   207 GC0712        10 WS-CS-Extra-H2-TXT             PIC X(76).
   208 GC0712     05 WS-CS-Switch-Defaults-TXT.
   209 GC0712        10 VALUE F1                       PIC 9(1). *> WS-CS-DEBUG-CHR
   210 GC0712        10 VALUE F4                       PIC 9(1). *> WS-CS-EXECUTE-CHR
   211 GC0712        10 VALUE F8                       PIC 9(1). *> WS-CS-FREE-CHR
   212 GC0712        10 VALUE F3                       PIC 9(1). *> WS-CS-LIBRARY-CHR
   213 GC0712        10 VALUE F5                       PIC 9(1). *> WS-CS-LISTING-CHR
   214 GC0712        10 VALUE F6                       PIC 9(1). *> WS-CS-NOFUNC-CHR
   215 GC0712        10 VALUE F9                       PIC 9(1). *> WS-CS-NOTRUNC-CHR
   216 GC0712        10 VALUE F2                       PIC 9(1). *> WS-CS-TRACEALL-CHR
   217 GC0712        10 VALUE F7                       PIC 9(1). *> WS-CS-WARNALL-CHR
   218 GC0712     05 WS-CS-All-Switches-TXT REDEFINES
   219 GC0712                          WS-CS-Switch-Defaults-TXT.
   220 GC0712        10 WS-CS-DEBUG-CHR                PIC X(1).
   221 GC0712        10 WS-CS-EXECUTE-CHR              PIC X(1).
   222 GC0712        10 WS-CS-FREE-CHR                 PIC X(1).
   223 GC0712        10 WS-CS-LIBRARY-CHR              PIC X(1).
   224 GC0712        10 WS-CS-LISTING-CHR              PIC X(1).
   225 GC0712        10 WS-CS-NOFUNC-CHR               PIC X(1).
   226 GC0712        10 WS-CS-NOTRUNC-CHR              PIC X(1).
   227 GC0712        10 WS-CS-TRACEALL-CHR             PIC X(1).
   228 GC0712        10 WS-CS-WARNALL-CHR              PIC X(1).
   229
   230 GC0909 01  WS-Cmd-TXT                           PIC X(512).
   231
   232 GC0712 01  WS-Cmd-Args-TXT                      PIC X(256).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 8
====== =============================================================================
   233
   234 GC0712 01  WS-Cmd-End-Quote-CHR                 PIC X(1).
   235
   236 GC0712 01  WS-Cmd-SUB                           USAGE BINARY-LONG.
   237
   238        01  WS-Cobc-Cmd-TXT                      PIC X(256).
   239
   240        01  WS-Config-Fn-TXT                     PIC X(12).
   241
   242 GC1113 01  WS-Delete-Fn-TXT                     PIC X(256).
   243
   244        01  WS-File-Name-TXT.
   245            05 WS-FN-CHR                         OCCURS 256 TIMES
   246                                                 PIC X(1).
   247
   248        01  WS-File-Status-Message-TXT.
   249            05 VALUE 'Status Code: '             PIC X(13).
   250            05 WS-FSM-Status-CD                  PIC 9(2).
   251            05 VALUE ', Meaning: '               PIC X(11).
   252            05 WS-FSM-Msg-TXT                    PIC X(25).
   253
   254 GC0909 01  WS-Horizontal-Line-TXT               PIC X(80).
   255 GC0909
   256        01  WS-I-SUB                             USAGE BINARY-LONG.
   257
   258        01  WS-J-SUB                             USAGE BINARY-LONG.
   259
   260 GC1213 01  WS-Listing-CD VALUE F5               PIC 9(1).
   261
   262 GC0712 01  WS-Listing-Filename-TXT              PIC X(256).
   263
   264 GC1213 01  WS-Listing-TXT VALUE SPACES          PIC X(27).
   265
   266        01  WS-OC-Compile-DT                     PIC XXXX/XX/XXBXX/XX.
   267
   268 GC0712 >>IF OS = 'CYGWIN'
   269 GC0712 01  WS-OS-Dir-CHR        VALUE '/'       PIC X(1).
   270 GC0712 78  WS-OS-Exe-Ext-CONST  VALUE '.exe'.
   271 GC0712 78  WS-OS-Lib-Ext-CONST  VALUE '.dll'.
   272 GC0712 78  WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   273 GC0712 01  WS-OS-Type-CD        VALUE 2         PIC 9(1).
   274 GC0712 >>ELIF OS = 'MINGW'
   275 GC0712 01  WS-OS-Dir-CHR        VALUE '\'       PIC X(1).
   276 GC0712 78  WS-OS-Exe-Ext-CONST  VALUE '.exe'.
   277 GC0712 78  WS-OS-Lib-Ext-CONST  VALUE '.dll'.
   278 GC0712 78  WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   279 GC0712 01  WS-OS-Type-CD        VALUE 5         PIC 9(1).
   280 GC0712 >>ELIF OS = 'OSX'
   281 GC0712 01  WS-OS-Dir-CHR        VALUE '/'       PIC X(1).
   282 GC0712 78  WS-OS-Exe-Ext-CONST  VALUE ' '.
   283 GC0712 78  WS-OS-Lib-Ext-CONST  VALUE '.dylib'.
   284 GC0712 78  WS-OS-Lib-Type-CONST VALUE 'DYLIB)'.
   285 GC0712 01  WS-OS-Type-CD        VALUE 4         PIC 9(1).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 9
====== =================================================================================
  286 GC0712 >>ELIF OS = 'UNIX'
  287 GC0712 01  WS-OS-Dir-CHR          VALUE '/'      PIC X(1).
  288 GC0712 78  WS-OS-Exe-Ext-CONST    VALUE ' '.
  289 GC0712 78  WS-OS-Lib-Ext-CONST    VALUE '.so'.
  290 GC0712 78  WS-OS-Lib-Type-CONST   VALUE 'SO)'.
  291 GC0712 01  WS-OS-Type-CD          VALUE 3        PIC 9(1).
  292 GC0712 >>ELIF OS = 'WINDOWS'
  293 GC0712 01  WS-OS-Dir-CHR          VALUE '\'      PIC X(1).
  294 GC0712 78  WS-OS-Exe-Ext-CONST    VALUE '.exe'.
  295 GC0712 78  WS-OS-Lib-Ext-CONST    VALUE '.dll'.
  296 GC0712 78  WS-OS-Lib-Type-CONST   VALUE 'DLL)'.
  297 GC0712 01  WS-OS-Type-CD          VALUE 1        PIC 9(1).
  298 GC0712 >>END-IF
  299 GC0909     88 WS-OS-Windows-BOOL VALUE 1, 5.
  300 GC0909     88 WS-OS-Cygwin-BOOL  VALUE 2.
  301 GC0712     88 WS-OS-UNIX-BOOL    VALUE 3, 4.
  302 GC0712     88 WS-OS-OSX-BOOL     VALUE 4.
  303
  304        01  WS-OS-Type-FILLER-TXT.
  305            05 VALUE 'Windows'                    PIC X(14).
  306            05 VALUE 'Windows/Cygwin'             PIC X(14).
  307            05 VALUE 'UNIX/Linux'                 PIC X(14).
  308            05 VALUE 'OSX'                         PIC X(14).
  309            05 VALUE 'Windows/MinGW'              PIC X(14).
  310        01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
  311            05 WS-OS-Type-TXT                      OCCURS 5 TIMES
  312                                                   PIC X(14).
  313
  314        01  WS-Output-Msg-TXT                      PIC X(80).
  315
  316        01  WS-Path-Delimiter-CHR                  PIC X(1).
  317
  318        01  WS-Prog-Extension-TXT                  PIC X(256).
  319
  320        01  WS-Prog-Folder-TXT                     PIC X(256).
  321
  322 GC0712 01  WS-Prog-File-Name-TXT.
  323 GC0712     05 WS-PFN-CHR                          OCCURS 256 TIMES
  324 GC0712                                            PIC X(1).
  325
  326 GC0712 01  WS-Pgm-Nm-TXT                          PIC X(31).
  327
  328        01  WS-Runtime-Switches-TXT.
  329            05 WS-RS-Compile-OK-CHR       PIC X(1).
  330               88 WS-RS-Compile-OK-BOOL         VALUE 'Y'.
  331 GC0909        88 WS-RS-Compile-OK-Warn-BOOL    VALUE 'W'.
  332               88 WS-RS-Compile-Failed-BOOL     VALUE 'N'.
  333 GC0609     05 WS-RS-Complete-CHR         PIC X(1).
  334 GC0609        88 WS-RS-Complete-BOOL           VALUE 'Y'.
  335 GC0609        88 WS-RS-Not-Complete-BOOL       VALUE 'N'.
  336 GC0712     05 WS-RS-Quote-CHR            PIC X(1).
  337 GC0712        88 WS-RS-Double-Quote-Used-BOOL  VALUE 'Y' FALSE 'N'.
  338 GC0809     05 WS-RS-IDENT-DIV-CHR        PIC X(1).
```

===================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 9

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 10
====== =======================================================================
   339 GC0809        88 WS-RS-1st-Prog-Complete-BOOL     VALUE 'Y'.
   340 GC0809        88 WS-RS-More-To-1st-Prog-BOOL      VALUE 'N'.
   341           05 WS-RS-No-Switch-Chgs-CHR          PIC X(1).
   342              88 WS-RS-No-Switch-Changes-BOOL    VALUE 'Y'.
   343              88 WS-RS-Switch-Changes-BOOL       VALUE 'N'.
   344 GC0709    05 WS-RS-Output-File-Busy-CHR        PIC X(1).
   345 GC0709        88 WS-RS-Output-File-Busy-BOOL     VALUE 'Y'.
   346 GC0709        88 WS-RS-Output-File-Avail-BOOL    VALUE 'N'.
   347 GC0809    05 WS-RS-Source-Record-Type-CHR      PIC X(1).
   348 GC0809        88 WS-RS-Source-Rec-Linkage-BOOL   VALUE 'L'.
   349 GC0809        88 WS-RS-Source-Rec-Ident-BOOL     VALUE 'I'.
   350 GC0712        88 WS-RS-Source-Rec-Ignored-BOOL   VALUE ' '.
   351           05 WS-RS-Switch-Error-CHR           PIC X(1).
   352              88 WS-RS-Switch-Is-Bad-BOOL        VALUE 'Y'.
   353              88 WS-RS-Switch-Is-Good-BOOL       VALUE 'N'.
   354
   355       01  WS-Tally-QTY                         USAGE BINARY-LONG.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                          2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 11
====== =========================================================================
   357        SCREEN SECTION.
   358        *>
   359        *> Here is the layout of the GCic screen.
   360        *>
   361        *> The sample screen below shows how the screen would look if the LINEDRAW
   362        *> configuration setting is set to a value of 2
   363        *>
   364        *> The following sample screen layout shows how the screen looks with line-drawing
   365        *> characters disabled.
   366        *>
   367        *>          1         2         3         4         5         6         7         8
   368        *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
   369        *>================================================================================
   370   01 *> GCic (2017/12/24 08:52) - GNU COBOL V3.0 24DEC2017 Interactive Compilation
   371   02 *>+----------------------------------------------------------------------------+
   372   03 *>| Folder:   E:\GNU COBOL\Samples                                             |
   373   04 *>| Filename: GCic.cbl                                                         |
   374   05 *>+----------------------------------------------------------------------------+
   375   06 *> Set/Clr Switches Via F1-F9; Set Config Via F12; ENTER Key Compiles; ESC Quits
   376   07 *>+------------------------------------------------------------+------------+
   377   08 *>| F1  Assume WITH DEBUGGING MODE  F6  "FUNCTION" Is Optional  | Current    |
   378   09 *>| F2  Procedure+Statement Trace   F7  Enable All Warnings     | Config:    |
   379   10 *>| F3  Make A Library (DLL)        F8  Source Is Free-Format   | XXXXXXXXXX |
   380   11 *>| F4  Execute If Compilation OK   F9  No COMP/BINARY Truncation |          |
   381   12 *>| F5 >Produce Listing (Landscape)                            |            |
   382   13 *>+------------------------------------------------------------+------------+
   383   14 *> Extra "cobc" Switches, If Any ("-save-temps=xxx" Prevents Listings):
   384   15 *>+----------------------------------------------------------------------------+
   385   16 *>| _____ |
   386   17 *>| _____ |
   387   18 *>+----------------------------------------------------------------------------+
   388   19 *> Program Execution Arguments, If Any:
   389   20 *>+----------------------------------------------------------------------------+
   390   21 *>| _____ |
   391   22 *>| _____ |
   392   23 *>+----------------------------------------------------------------------------+
   393   24 *> GCic Copyright (C) 2009-2018, Gary L. Cutler, GPL
   394        *>================================================================================
   395        *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
   396        *>          1         2         3         4         5         6         7         8
   397        *>
   398        *> If this program is run on Windows, it must run with codepage 437 activated to
   399        *> display the line-drawing characters.  With a native Windows build or a
   400        *> Windows/MinGW build, one could use the command 'chcp 437' to set that codepage
   401        *> for display within a Windows console window (that should be the default though).
   402        *> With a Windows/Cygwin build, set the environment variable CYGWIN to a value of
   403        *> 'codepage:oem' (this cannot be done from within the program though - you will
   404        *> have to use the 'Computer/Advanced System Settings/Environment Variables' (Vista
   405        *> or Windows 7) function to define the variable.  XP Users: use 'My Computer/
   406        *> Properties/Advanced/Environment Variables'.
   407        *>
   408        *> OSX users may use line drawing characters in this and any GNU COBOL program
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 12
====== ================================================================================
   409       *> simply by setting their 'terminal' application's font to "Lucida Console".
   410       *>
   411       >>IF LINEDRAW IS EQUAL TO 0
   412       78 LD-UL-Corner                   VALUE ' '.
   413       78 LD-LL-Corner                   VALUE ' '.
   414       78 LD-UR-Corner                   VALUE ' '.
   415       78 LD-LR-Corner                   VALUE ' '.
   416       78 LD-Upper-T                     VALUE ' '.
   417       78 LD-Lower-T                     VALUE ' '.
   418       78 LD-Horiz-Line                  VALUE ' '.
   419       78 LD-Vert-Line                   VALUE ' '.
   420       >>ELIF LINEDRAW IS EQUAL TO 1
   421       78 LD-UL-Corner                   VALUE X'DA'.
   422       78 LD-LL-Corner                   VALUE X'C0'.
   423       78 LD-UR-Corner                   VALUE X'BF'.
   424       78 LD-LR-Corner                   VALUE X'D9'.
   425       78 LD-Upper-T                     VALUE X'C2'.
   426       78 LD-Lower-T                     VALUE X'C1'.
   427       78 LD-Horiz-Line                  VALUE X'C4'.
   428       78 LD-Vert-Line                   VALUE X'B3'.
   429       >>ELSE
   430       78 LD-UL-Corner                   VALUE '+'.
   431       78 LD-LL-Corner                   VALUE '+'.
   432       78 LD-UR-Corner                   VALUE '+'.
   433       78 LD-LR-Corner                   VALUE '+'.
   434       78 LD-Upper-T                     VALUE '+'.
   435       78 LD-Lower-T                     VALUE '+'.
   436       78 LD-Horiz-Line                  VALUE '-'.
   437       78 LD-Vert-Line                   VALUE '|'.
   438       >>END-IF
   439
   440       01 S-Blank-SCR LINE 1 COLUMN 1 BLANK SCREEN.
   441
   442       01 S-Switches-SCR BACKGROUND-COLOR COB-COLOR-BLACK
   443                         FOREGROUND-COLOR COB-COLOR-WHITE AUTO.
   444       *>
   445       *> GENERAL SCREEN FRAMEWORK
   446       *>
   447          03 BACKGROUND-COLOR COB-COLOR-BLACK
   448             FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   449 GC0712     05 LINE 02 COL 01         VALUE LD-UL-Corner.
   450 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   451            05         COL 80         VALUE LD-UR-Corner.
   452
   453 GC0712     05 LINE 03 COL 01         VALUE LD-Vert-Line.
   454            05         COL 80         VALUE LD-Vert-Line.
   455
   456 GC0712     05 LINE 04 COL 01         VALUE LD-Vert-Line.
   457            05         COL 80         VALUE LD-Vert-Line.
   458
   459 GC0712     05 LINE 05 COL 01         VALUE LD-LL-Corner.
   460 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   461            05         COL 80         VALUE LD-LR-Corner.
```

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GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 12
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 13
======  ===============================================================================
   462
   463 GC0712      05 LINE 07 COL 01            VALUE LD-UL-Corner.
   464 GC0712      05         COL 02 PIC X(65) FROM  WS-Horizontal-Line-TXT.
   465 GC0712      05         COL 67           VALUE LD-Upper-T.
   466 GC0712      05         COL 68 PIC X(12) FROM  WS-Horizontal-Line-TXT.
   467         05         COL 80           VALUE LD-UR-Corner.
   468
   469 GC0712      05 LINE 08 COL 01            VALUE LD-Vert-Line.
   470 GC0712      05         COL 67           VALUE LD-Vert-Line.
   471         05         COL 80           VALUE LD-Vert-Line.
   472
   473 GC0712      05 LINE 09 COL 01            VALUE LD-Vert-Line.
   474 GC0712      05         COL 67           VALUE LD-Vert-Line.
   475         05         COL 80           VALUE LD-Vert-Line.
   476
   477 GC0712      05 LINE 10 COL 01            VALUE LD-Vert-Line.
   478 GC0712      05         COL 67           VALUE LD-Vert-Line.
   479         05         COL 80           VALUE LD-Vert-Line.
   480
   481 GC0712      05 LINE 11 COL 01            VALUE LD-Vert-Line.
   482 GC0712      05         COL 67           VALUE LD-Vert-Line.
   483         05         COL 80           VALUE LD-Vert-Line.
   484
   485 GC0712      05 LINE 12 COL 01            VALUE LD-Vert-Line.
   486 GC0712      05         COL 67           VALUE LD-Vert-Line.
   487         05         COL 80           VALUE LD-Vert-Line.
   488
   489 GC0712      05 LINE 13 COL 01            VALUE LD-LL-Corner.
   490 GC0712      05         COL 02 PIC X(65) FROM  WS-Horizontal-Line-TXT.
   491 GC0712      05         COL 67           VALUE LD-Lower-T.
   492 GC0712      05         COL 68 PIC X(12) FROM  WS-Horizontal-Line-TXT.
   493         05         COL 80           VALUE LD-LR-Corner.
   494
   495 GC0712      05 LINE 15 COL 01            VALUE LD-UL-Corner.
   496 GC0712      05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   497         05         COL 80           VALUE LD-UR-Corner.
   498
   499 GC0712      05 LINE 16 COL 01            VALUE LD-Vert-Line.
   500         05         COL 80           VALUE LD-Vert-Line.
   501
   502 GC0712      05 LINE 17 COL 01            VALUE LD-Vert-Line.
   503         05         COL 80           VALUE LD-Vert-Line.
   504
   505 GC0712      05 LINE 18 COL 01            VALUE LD-LL-Corner.
   506 GC0712      05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   507         05         COL 80           VALUE LD-LR-Corner.
   508
   509 GC0712      05 LINE 20 COL 01            VALUE LD-UL-Corner.
   510 GC0712      05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   511         05         COL 80           VALUE LD-UR-Corner.
   512
   513 GC0712      05 LINE 21 COL 01            VALUE LD-Vert-Line.
   514         05         COL 80           VALUE LD-Vert-Line.
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                  Page: 13
@end smallformat
@page
@smallformat
@verbatim
GNUCOBOL 3.0 24DEC2017  Source Listing                                            2017/12/24
                                                /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                                   Page: 14
====== ==========================================================================================
   515
   516 GC0712       05 LINE 22 COL 01           VALUE LD-Vert-Line.
   517              05         COL 80           VALUE LD-Vert-Line.
   518
   519 GC0712       05 LINE 23 COL 01           VALUE LD-LL-Corner.
   520 GC0712       05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   521              05         COL 80           VALUE LD-LR-Corner.
   522       *>
   523       *> TOP AND BOTTOM LINES
   524       *>
   525 GC0712    03 BACKGROUND-COLOR COB-COLOR-BLUE
   526             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   527 GC0410       05 LINE 01 COL 01 VALUE ' GCic ('.
   528 GC0410       05         COL 08 PIC X(16) FROM WS-OC-Compile-DT.
   529 GC1213       05         COL 24 VALUE ') GNUCOBOL 3.0 24DEC2017 ' &
   530 GC0410                                'Interactive Compilation        '.
   531 VC0617    03 BACKGROUND-COLOR COB-COLOR-RED
   532 GC0712       FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   533 GC0712       05 LINE 24 COL 01 PIC X(80) FROM WS-Output-Msg-TXT.
   534       *>
   535       *> LABELS
   536       *>
   537          03 BACKGROUND-COLOR COB-COLOR-BLACK
   538             FOREGROUND-COLOR COB-COLOR-CYAN  HIGHLIGHT.
   539 GC0712       05 LINE 06 COL 02 VALUE 'Set/Clr Switches Via F1-F9; ' &
   540 GC0712                              'Set Config Via F12; Enter Key ' &
   541 GC0712                              'Compiles; Esc Quits'.
   542 GC0712       05 LINE 14 COL 02 VALUE 'Extra "cobc" Switches, If Any ' &
   543 GC0712                              '("-save-temps=xxx" Prevents ' &
   544 GC0712                              'Listings):'.
   545 GC0712       05 LINE 19 COL 02 VALUE 'Program Execution Arguments, ' &
   546 GC0712                              'If Any:'.
   547 GC0712    03 BACKGROUND-COLOR COB-COLOR-BLACK
   548 GC0712       FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   549 GC0712       05 LINE 06 COL 23 VALUE 'F1'.
   550 GC0712       05         COL 26 VALUE 'F9'.
   551 GC0712       05         COL 45 VALUE 'F12'.
   552 GC0712       05         COL 50 VALUE 'ENTER'.
   553 GC0712       05         COL 70 VALUE 'ESC'.
   554       *>
   555       *> TOP SECTION BACKGROUND
   556       *>
   557          03 BACKGROUND-COLOR COB-COLOR-BLACK
   558             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   559 GC0712       05 LINE 03 COL 62 VALUE 'Enter'.
   560 GC0712       05 LINE 04 COL 62 VALUE 'Esc'.
```

```
561
562            03 BACKGROUND-COLOR COB-COLOR-BLACK
563               FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
564 GC0712      05 LINE 04 COL 03 VALUE 'Folder:   '.
565 GC0712      05 LINE 03 COL 03 VALUE 'Filename: '.
566
567 GC0712      05 LINE 03 COL 67 VALUE ': Compile   '.
```

====================================================================================================

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 15
====== =================================================================================
   568 GC0712      05 LINE 04 COL 65 VALUE ':   Quit       '.
   569      *>
   570      *> TOP SECTION PROGRAM INFO
   571      *>
   572          03 BACKGROUND-COLOR COB-COLOR-BLACK
   573             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   574 GC0712      05 LINE 03 COL 13 PIC X(66) FROM WS-Prog-File-Name-TXT.
   575 GC0712      05 LINE 04 COL 13 PIC X(66) FROM WS-Prog-Folder-TXT.
   576      *>
   577      *> MIDDLE LEFT SECTION F-KEYS
   578      *>
   579          03 BACKGROUND-COLOR COB-COLOR-BLACK
   580             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   581 GC0712      05 LINE 08 COL 03 VALUE 'F1'.
   582 GC0712      05 LINE 09 COL 03 VALUE 'F2'.
   583 GC0712      05 LINE 10 COL 03 VALUE 'F3'.
   584 GC0712      05 LINE 11 COL 03 VALUE 'F4'.
   585 GC0712      05 LINE 12 COL 03 VALUE 'F5'.
   586
   587 GC0712      05 LINE 08 COL 35 VALUE 'F6'.
   588 GC0712      05 LINE 09 COL 35 VALUE 'F7'.
   589 GC0712      05 LINE 10 COL 35 VALUE 'F8'.
   590 GC0712      05 LINE 11 COL 35 VALUE 'F9'.
   591      *>
   592      *> MIDDLE LEFT SECTION SWITCHES
   593      *>
   594          03 BACKGROUND-COLOR COB-COLOR-BLACK
   595             FOREGROUND-COLOR COB-COLOR-RED   HIGHLIGHT.
   596 GC0712      05 LINE 08 COL 06 PIC X(1) FROM WS-CS-DEBUG-CHR.
   597 GC0712      05 LINE 09 COL 06 PIC X(1) FROM WS-CS-TRACEALL-CHR.
   598 GC0712      05 LINE 10 COL 06 PIC X(1) FROM WS-CS-LIBRARY-CHR.
   599 GC0712      05 LINE 11 COL 06 PIC X(1) FROM WS-CS-EXECUTE-CHR.
   600 GC0712      05 LINE 12 COL 06 PIC X(1) FROM WS-CS-LISTING-CHR.
   601
   602 GC0712      05 LINE 08 COL 38 PIC X(1) FROM WS-CS-NOFUNC-CHR.
   603 GC0712      05 LINE 09 COL 38 PIC X(1) FROM WS-CS-WARNALL-CHR.
   604 GC0712      05 LINE 10 COL 38 PIC X(1) FROM WS-CS-FREE-CHR.
   605 GC0712      05 LINE 11 COL 38 PIC X(1) FROM WS-CS-NOTRUNC-CHR.
   606      *>
   607      *> MIDDLE LEFT SECTION BACKGROUND
   608      *>
   609          03 BACKGROUND-COLOR COB-COLOR-BLACK
   610             FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   611 GC0712      05 LINE 08 COL 07 VALUE 'Assume WITH DEBUGGING MODE'.
   612 GC0712      05 LINE 09 COL 07 VALUE 'Procedure+Statement Trace '.
   613 GC0712      05 LINE 10 COL 07 VALUE 'Make a Library ('.
   614 GC0712      05         COL 23 VALUE WS-OS-Lib-Type-CONST.
   615 GC0712      05 LINE 11 COL 07 VALUE 'Execute If Compilation OK '.
   616 GC1213      05 LINE 12 COL 07 FROM  WS-Listing-TXT.
   617
   618 GC0712      05 LINE 08 COL 39 VALUE '"FUNCTION" Is Optional    '.
   619 GC0712      05 LINE 09 COL 39 VALUE 'Enable All Warnings       '.
   620 GC0712      05 LINE 10 COL 39 VALUE 'Source Is Free-Format     '.
```

===================================================================================================
```
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 15
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 16
====== =========================================================================
   621 GC0712        05 LINE 11 COL 39 VALUE 'No COMP/BINARY Truncation '.
   622        *>
   623        *> MIDDLE RIGHT SECTION Text
   624        *>
   625            03 BACKGROUND-COLOR COB-COLOR-BLACK
   626               FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   627 GC0712        05 LINE 08 COL 69 VALUE 'Current'.
   628 GC0712        05 LINE 09 COL 69 VALUE 'Config:'.
   629        *>
   630        *> MIDDLE RIGHT SECTION CONFIG FILE
   631        *>
   632            03 BACKGROUND-COLOR COB-COLOR-BLACK
   633               FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   634 GC0712        05 LINE 10 COL 69 PIC X(10)
   635 GC0712            FROM WS-CS-Filename-TXT (WS-CS-Config-NUM).
   636        *>
   637        *> FREE-FORM OPTIONS FIELDS
   638        *>
   639            03 BACKGROUND-COLOR COB-COLOR-BLACK
   640               FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   641 GC0712        05 LINE 16 COL 03 PIC X(76) USING WS-CS-Extra-H1-TXT.
   642 GC0712        05 LINE 17 COL 03 PIC X(76) USING WS-CS-Extra-H2-TXT.
   643 GC0712        05 LINE 21 COL 03 PIC X(76) USING WS-CS-Arg-H1-TXT.
   644 GC0712        05 LINE 22 COL 03 PIC X(76) USING WS-CS-Arg-H2-TXT.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                               2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 17
====== =========================================================================

   646       PROCEDURE DIVISION.
   647       *>************************************************************
   648       *> Legend to procedure names:                            **
   649       *>                                                        **
   650       *> 00x-xxx   All MAIN driver procedures                  **
   651       *> 0xx-xxx   All GLOBAL UTILITY procedures               **
   652       *> 1xx-xxx   All INITIALIZATION procedures               **
   653       *> 2xx-xxx   All CORE PROCESSING procedures              **
   654       *> 9xx-xxx   All TERMINATION procedures                  **
   655       *>************************************************************
   656        DECLARATIVES.
   657        000-File-Error SECTION.
   658            USE AFTER STANDARD ERROR PROCEDURE ON F-Source-Code-FILE.
   659            COPY FileStat-Msgs
   660                REPLACING STATUS BY WS-FSM-Status-CD
   661                         MSG    BY WS-FSM-Msg-TXT.
       EVALUATE WS-FSM-Status-CD
       WHEN 00 MOVE 'SUCCESS                ' TO WS-FSM-Msg-TXT
       WHEN 02 MOVE 'SUCCESS DUPLICATE      ' TO WS-FSM-Msg-TXT
       WHEN 04 MOVE 'SUCCESS INCOMPLETE     ' TO WS-FSM-Msg-TXT
       WHEN 05 MOVE 'SUCCESS OPTIONAL       ' TO WS-FSM-Msg-TXT
       WHEN 07 MOVE 'SUCCESS NO UNIT        ' TO WS-FSM-Msg-TXT
       WHEN 10 MOVE 'END OF FILE            ' TO WS-FSM-Msg-TXT
       WHEN 14 MOVE 'OUT OF KEY RANGE       ' TO WS-FSM-Msg-TXT
       WHEN 21 MOVE 'KEY INVALID            ' TO WS-FSM-Msg-TXT
       WHEN 22 MOVE 'KEY EXISTS             ' TO WS-FSM-Msg-TXT
       WHEN 23 MOVE 'KEY NOT EXISTS         ' TO WS-FSM-Msg-TXT
       WHEN 30 MOVE 'PERMANENT ERROR        ' TO WS-FSM-Msg-TXT
       WHEN 31 MOVE 'INCONSISTENT FILENAME  ' TO WS-FSM-Msg-TXT
       WHEN 34 MOVE 'BOUNDARY VIOLATION     ' TO WS-FSM-Msg-TXT
       WHEN 35 MOVE 'FILE NOT FOUND         ' TO WS-FSM-Msg-TXT
       WHEN 37 MOVE 'PERMISSION DENIED      ' TO WS-FSM-Msg-TXT
       WHEN 38 MOVE 'CLOSED WITH LOCK       ' TO WS-FSM-Msg-TXT
       WHEN 39 MOVE 'CONFLICT ATTRIBUTE     ' TO WS-FSM-Msg-TXT
       WHEN 41 MOVE 'ALREADY OPEN           ' TO WS-FSM-Msg-TXT
       WHEN 42 MOVE 'NOT OPEN               ' TO WS-FSM-Msg-TXT
       WHEN 43 MOVE 'READ NOT DONE          ' TO WS-FSM-Msg-TXT
       WHEN 44 MOVE 'RECORD OVERFLOW        ' TO WS-FSM-Msg-TXT
       WHEN 46 MOVE 'READ ERROR             ' TO WS-FSM-Msg-TXT
       WHEN 47 MOVE 'INPUT DENIED           ' TO WS-FSM-Msg-TXT
       WHEN 48 MOVE 'OUTPUT DENIED          ' TO WS-FSM-Msg-TXT
       WHEN 49 MOVE 'I/O DENIED             ' TO WS-FSM-Msg-TXT
       WHEN 51 MOVE 'RECORD LOCKED          ' TO WS-FSM-Msg-TXT
       WHEN 52 MOVE 'END-OF-PAGE            ' TO WS-FSM-Msg-TXT
       WHEN 57 MOVE 'I/O LINAGE             ' TO WS-FSM-Msg-TXT
       WHEN 61 MOVE 'FILE SHARING FAILURE   ' TO WS-FSM-Msg-TXT
       WHEN 91 MOVE 'FILE NOT AVAILABLE     ' TO WS-FSM-Msg-TXT
       END-EVALUATE.
   662            MOVE SPACES TO WS-Output-Msg-TXT
   663            IF WS-FSM-Status-CD = 35
   664                DISPLAY
   665                    'File not found: "'
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 18
====== ========================================================================================
   666                   TRIM(WS-File-Name-TXT,TRAILING)
   667                   ,"'
   668             ELSE
   669                 DISPLAY
   670                     'Error accessing file: "'
   671                     TRIM(WS-File-Name-TXT,TRAILING)
   672                     ,"'
   673             END-IF
   674             GOBACK
   675             .
   676         END DECLARATIVES.
   677
   678         000-Main SECTION.
   679             PERFORM 100-Initialization
   680 GC0609     SET WS-RS-Not-Complete-BOOL TO TRUE
   681 GC0609     PERFORM UNTIL WS-RS-Complete-BOOL
   682 GC0609         PERFORM 200-Let-User-Set-Switches
   683 GC0609         PERFORM 210-Run-Compiler
   684 GC0410         IF (WS-RS-Compile-OK-BOOL OR WS-RS-Compile-OK-Warn-BOOL)
   685 GC0712         AND (WS-CS-LISTING-CHR > SPACE)
   686 GC0712             DISPLAY S-Blank-SCR
   687 GC0410             PERFORM 220-Make-Listing
   688 GC0410         END-IF
   689 GC0709         IF  (WS-CS-EXECUTE-CHR NOT = SPACES)
   690 GC0709         AND (WS-RS-Output-File-Avail-BOOL)
   691 GC0609             PERFORM 230-Run-Program
   692 GC0609         END-IF
   693 GC0712         PERFORM 250-Autoload-Listing
   694 GC0609     END-PERFORM
   695             PERFORM 900-Terminate
   696       * -- Control will NOT return
   697             .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 19
====== ========================================================================

   699         *>***************************************************************
   700         *> Perform all program-wide initialization operations       **
   701         *>***************************************************************
   702          100-Initialization SECTION.
   703         *>***************************************************************
   704         *> Make sure full screen-handling is in effect              **
   705         *>***************************************************************
   706             SET ENVIRONMENT 'COB_SCREEN_EXCEPTIONS' TO 'Y'
   707             SET ENVIRONMENT 'COB_SCREEN_ESC'        TO 'Y'
   708 VC0617      SET ENVIRONMENT "COB_EXIT_WAIT"         TO "0".
   709         *>***************************************************************
   710         *> Get GCic Compilation Date/Time                           **
   711         *>***************************************************************
   712             MOVE WHEN-COMPILED (1:12) TO WS-OC-Compile-DT
   713             INSPECT WS-OC-Compile-DT
   714                 REPLACING ALL '/' BY ':'
   715                 AFTER INITIAL SPACE
   716         *>***************************************************************
   717         *> Convert WS-CS-All-Switches-TXT to Needed Alphanumeric Values**
   718         *>***************************************************************
   719             INSPECT WS-CS-All-Switches-TXT
   720                 REPLACING ALL '0' BY SPACE
   721                           ALL '1' BY SELCHAR
   722 GC1213                    ALL '2' BY SELCHAR
   723         *>***************************************************************
   724         *> Process filename (the only command-line argument)        **
   725         *>***************************************************************
   726 GC0712      ACCEPT WS-Cmd-Args-TXT FROM COMMAND-LINE
   727 GC0712      MOVE 1 TO WS-Cmd-SUB
   728 GC0712      IF WS-Cmd-Args-TXT(WS-Cmd-SUB:1) = '"' OR "'"
   729 GC0712         MOVE WS-Cmd-Args-TXT(WS-Cmd-SUB:1)
   730 GC0712           TO WS-Cmd-End-Quote-CHR
   731 GC0712         ADD 1 TO WS-Cmd-SUB
   732 GC0712         UNSTRING WS-Cmd-Args-TXT
   733 GC0712             DELIMITED BY WS-Cmd-End-Quote-CHR
   734 GC0712             INTO WS-File-Name-TXT
   735 GC0712             WITH POINTER WS-Cmd-SUB
   736 GC0712      ELSE
   737 GC0712         UNSTRING WS-Cmd-Args-TXT
   738 GC0712             DELIMITED BY ALL SPACES
   739 GC0712             INTO WS-File-Name-TXT
   740 GC0712             WITH POINTER WS-Cmd-SUB
   741 GC0712      END-IF
   742             IF WS-File-Name-TXT = SPACES
   743 GC0712         DISPLAY 'No program filename was specified'
   744             PERFORM 900-Terminate
   745         * ------ Control will NOT return
   746             END-IF
   747         *>***************************************************************
   748         *> Determine if 'Make A Library' feature should be forced 'ON' **
   749         *>***************************************************************
   750             PERFORM 240-Find-LINKAGE-SECTION
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                       2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                              Page: 20
====== =========================================================================================
  751         *>**************************************************************
  752         *> Split 'WS-File-Name-TXT' into 'WS-Prog-Folder-TXT' and     **
  753         *> 'WS-Prog-File-Name-TXT'                                     **
  754         *>**************************************************************
  755 GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
  756 GC0712         MOVE '\' TO WS-OS-Dir-CHR
  757 GC0909     END-IF
  758 GC0712     MOVE LENGTH(WS-File-Name-TXT) TO WS-I-SUB
  759 GC0712     PERFORM UNTIL WS-I-SUB = 0
  760 GC0712     OR WS-FN-CHR (WS-I-SUB) = WS-OS-Dir-CHR
  761             SUBTRACT 1 FROM WS-I-SUB
  762            END-PERFORM
  763            IF WS-I-SUB = 0
  764                MOVE SPACES     TO WS-Prog-Folder-TXT
  765                MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
  766            ELSE
  767                MOVE '*' TO WS-FN-CHR (WS-I-SUB)
  768                UNSTRING WS-File-Name-TXT DELIMITED BY '*'
  769                    INTO WS-Prog-Folder-TXT
  770                        WS-Prog-File-Name-TXT
  771 GC0712         MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
  772            END-IF
  773            IF WS-Prog-Folder-TXT = SPACES
  774                ACCEPT WS-Prog-Folder-TXT FROM ENVIRONMENT 'CD'
  775 GC0909     ELSE
  776 GC0909         CALL 'CBL_CHANGE_DIR'
  777 GC0909             USING TRIM(WS-Prog-Folder-TXT,TRAILING)
  778            END-IF
  779 GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
  780 GC0712         MOVE '/' TO WS-OS-Dir-CHR
  781 GC0909     END-IF
  782         *>**************************************************************
  783         *> Split 'WS-Prog-File-Name-TXT' into 'WS-Pgm-Nm-TXT' &       **
  784         *> 'WS-Prog-Extension-TXT'                                     **
  785         *>**************************************************************
  786 GC0712     MOVE LENGTH(WS-Prog-File-Name-TXT) TO WS-I-SUB
  787 GC0712     PERFORM UNTIL WS-I-SUB = 0
  788 GC0712     OR WS-PFN-CHR (WS-I-SUB) = '.'
  789 GC0712         SUBTRACT 1 FROM WS-I-SUB
  790 GC0712     END-PERFORM
  791 GC0712     IF WS-I-SUB = 0
  792 GC0712         MOVE WS-Prog-File-Name-TXT TO WS-Pgm-Nm-TXT
  793 GC0712         MOVE SPACES        TO WS-Prog-Extension-TXT
  794 GC0712     ELSE
  795 GC0712         MOVE '*' TO WS-PFN-CHR (WS-I-SUB)
  796 GC0712         UNSTRING WS-Prog-File-Name-TXT DELIMITED BY '*'
  797 GC0712             INTO WS-Pgm-Nm-TXT
  798 GC0712                 WS-Prog-Extension-TXT
  799 GC0712         MOVE '.' TO WS-PFN-CHR (WS-I-SUB)
  800 GC0712     END-IF
  801         *>**************************************************************
  802         *> Build initial Line 24 Message                             **
  803         *>**************************************************************
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 21
====== ===============================================================================
   804 GC0909     MOVE ALL LD-Horiz-Line TO WS-Horizontal-Line-TXT.
   805 GC0410     MOVE CONCATENATE(' GCic for '
   806 GC0410                       TRIM(WS-OS-Type-TXT(WS-OS-Type-CD),Trailing)
   807 GC1213                       ' Copyright (C) 2009-2018, Gary L. '
   808 GC0410                       'Cutler, GPL')
   809 GC0410        TO WS-Output-Msg-TXT.
   810 GC0909
```

==============================================================================================
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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 22
====== ==============================================================================

   812        *>****************************************************************
   813        *> Show the user the current switch settings and allow them to **
   814        *> be changed.                                                 **
   815        *>****************************************************************
   816         200-Let-User-Set-Switches SECTION.
   817            SET WS-RS-Switch-Changes-BOOL TO TRUE
   818            PERFORM UNTIL WS-RS-No-Switch-Changes-BOOL
   819 GC1213       EVALUATE WS-Listing-CD
   820 GC1213       WHEN 0
   821 GC1213          MOVE 'Listing Off'          TO WS-Listing-TXT
   822 GC1213          MOVE SPACE                  TO WS-CS-LISTING-CHR
   823 GC1213       WHEN 1
   824 GC1213          MOVE 'Listing On (Landscape)' TO WS-Listing-TXT
   825 GC1213          MOVE SELCHAR                TO WS-CS-LISTING-CHR
   826 GC1213       WHEN 2
   827 GC1213          MOVE 'Listing On (Portrait)' TO WS-Listing-TXT
   828 GC1213          MOVE SELCHAR                TO WS-CS-LISTING-CHR
   829 GC1213       END-EVALUATE
   830            ACCEPT S-Switches-SCR
   831            IF COB-CRT-STATUS > 0
   832                EVALUATE COB-CRT-STATUS
   833                    WHEN COB-SCR-F1
   834                        IF WS-CS-DEBUG-CHR = SPACE
   835 GC0712                     MOVE SELCHAR TO WS-CS-DEBUG-CHR
   836                        ELSE
   837                            MOVE ' ' TO WS-CS-DEBUG-CHR
   838                        END-IF
   839 GC0712              WHEN COB-SCR-F2
   840 GC0712                  IF  WS-CS-TRACEALL-CHR = SPACE
   841 GC0712                      MOVE SELCHAR TO WS-CS-TRACEALL-CHR
   842 GC0712                  ELSE
   843 GC0712                      MOVE ' ' TO WS-CS-TRACEALL-CHR
   844 GC0712                  END-IF
   845                    WHEN COB-SCR-F3
   846 GC0712                  IF WS-CS-LIBRARY-CHR = SPACE
   847 GC0712                      MOVE SELCHAR TO WS-CS-LIBRARY-CHR
   848                        ELSE
   849 GC0712                      MOVE ' ' TO WS-CS-LIBRARY-CHR
   850                        END-IF
   851                    WHEN COB-SCR-F4
   852                        IF  WS-CS-EXECUTE-CHR = SPACE
   853 GC0712                      MOVE SELCHAR TO WS-CS-EXECUTE-CHR
   854                        ELSE
   855                            MOVE ' ' TO WS-CS-EXECUTE-CHR
   856                        END-IF
   857 GC0712              WHEN COB-SCR-F5
   858 GC1213                  ADD 1 TO WS-Listing-CD
   859 GC1213                  IF WS-Listing-CD > 2
   860 GC1213                      MOVE 0 TO WS-Listing-CD
   861 GC1213                  END-IF
   862 GC0712              WHEN COB-SCR-F6
   863 GC0712                  IF WS-CS-NOFUNC-CHR = SPACE
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                       2017/12/24
                                                /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 23
====== ==========================================================================================
   864 GC0712                        MOVE SELCHAR TO WS-CS-NOFUNC-CHR
   865 GC0712                   ELSE
   866 GC0712                        MOVE ' ' TO WS-CS-NOFUNC-CHR
   867 GC0712                   END-IF
   868 GC0712                WHEN COB-SCR-F7
   869 GC0712                   IF WS-CS-WARNALL-CHR = SPACE
   870 GC0712                        MOVE SELCHAR TO WS-CS-WARNALL-CHR
   871 GC0712                   ELSE
   872 GC0712                        MOVE ' ' TO WS-CS-WARNALL-CHR
   873 GC0712                   END-IF
   874 GC0712                WHEN COB-SCR-F8
   875 GC0712                   IF WS-CS-FREE-CHR = SPACE
   876 GC0712                        MOVE SELCHAR TO WS-CS-FREE-CHR
   877 GC0712                   ELSE
   878 GC0712                        MOVE ' ' TO WS-CS-FREE-CHR
   879 GC0712                   END-IF
   880 GC0712                WHEN COB-SCR-F9
   881 GC0712                   IF  WS-CS-NOTRUNC-CHR = SPACE
   882 GC0712                        MOVE SELCHAR TO WS-CS-NOTRUNC-CHR
   883 GC0712                   ELSE
   884 GC0712                        MOVE ' ' TO WS-CS-NOTRUNC-CHR
   885 GC0712                   END-IF
   886                        WHEN COB-SCR-ESC
   887                           PERFORM 900-Terminate
   888      * ----------------- Control will NOT return
   889 GC0712                WHEN COB-SCR-F12
   890 GC0712                   ADD 1 TO WS-CS-Config-NUM
   891 GC0712                   IF WS-CS-Config-NUM > 7
   892 GC0712                        MOVE 1 TO WS-CS-Config-NUM
   893 GC0712                   END-IF
   894                        WHEN OTHER
   895                           MOVE 'An unsupported key was pressed'
   896                             TO WS-Output-Msg-TXT
   897                    END-EVALUATE
   898                ELSE
   899                    SET WS-RS-No-Switch-Changes-BOOL TO TRUE
   900                END-IF
   901           END-PERFORM
   902           .
```

```
================================================================================================
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 24
======  ========================================================================

   904        *>**************************************************************
   905        *> Run the compiler using the switch settings we've prepared.  **
   906        *>**************************************************************
   907         210-Run-Compiler SECTION.
   908            MOVE SPACES TO WS-Cmd-TXT
   909                          WS-Cobc-Cmd-TXT
   910                          WS-Output-Msg-TXT
   911            DISPLAY S-Switches-SCR
   912            MOVE 1 TO WS-I-SUB
   913 GC0712     MOVE LOWER-CASE(WS-CS-Filename-TXT (WS-CS-Config-NUM))
   914 GC0712       TO WS-Config-Fn-TXT
   915        *>**************************************************************
   916        *> Build the 'cobc' command                                  **
   917        *>**************************************************************
   918 GC0909     MOVE SPACES TO WS-Cobc-Cmd-TXT
   919 GC0909     STRING 'cobc -v -std='
   920 GC0909        TRIM(WS-Config-Fn-TXT,TRAILING)
   921 GC0909        ' '
   922 GC0909        INTO WS-Cobc-Cmd-TXT
   923 GC0909        WITH POINTER WS-I-SUB
   924            IF WS-CS-LIBRARY-CHR NOT = ' '
   925                STRING '-m '
   926                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   927                    WITH POINTER WS-I-SUB
   928            ELSE
   929                STRING '-x '
   930                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   931                    WITH POINTER WS-I-SUB
   932            END-IF
   933            IF WS-CS-DEBUG-CHR NOT = ' '
   934                STRING '-fdebugging-line '
   935                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   936                    WITH POINTER WS-I-SUB
   937            END-IF
   938            IF WS-CS-NOTRUNC-CHR NOT = ' '
   939                STRING '-fnotrunc '
   940                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   941                    WITH POINTER WS-I-SUB
   942            END-IF
   943            IF WS-CS-TRACEALL-CHR NOT = ' '
   944 GC0809         STRING '-ftraceall '
   945                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   946                    WITH POINTER WS-I-SUB
   947            END-IF
   948 GC0712     IF WS-CS-NOFUNC-CHR NOT = ' '
   949 VC0717         STRING '-fintrinsics=ALL '
   950 GC0712             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   951 GC0712             WITH POINTER WS-I-SUB
   952 GC0712     END-IF
   953 GC0712     IF WS-CS-WARNALL-CHR NOT = ' '
   954 GC0712         STRING '-Wall '
   955 GC0712             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 25
====== ========================================================================================
   956 GC0712          WITH POINTER WS-I-SUB
   957 GC0712      END-IF
   958 GC0712      IF WS-CS-FREE-CHR NOT = ' '
   959 GC0712          STRING '-free '
   960 GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   961 GC0712              WITH POINTER WS-I-SUB
   962 GC0712      ELSE
   963 GC0712          STRING '-fixed '
   964 GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   965 GC0712              WITH POINTER WS-I-SUB
   966 GC0712      END-IF
   967
   968 GC0712      MOVE 0 TO WS-Tally-QTY
   969 GC0712      INSPECT WS-CS-Extra-TXT
   970 GC0712          TALLYING WS-Tally-QTY FOR ALL '-save-temps'
   971 GC0712      IF WS-CS-LISTING-CHR > SPACE
   972 GC0712      AND WS-Tally-QTY > 0
   973 GC0712          MOVE SPACE TO WS-CS-LISTING-CHR *> Can't generate listing if -save-temps u
       sed
   974 GC0712      END-IF
   975 GC0712      IF WS-CS-LISTING-CHR > SPACE
   976 GC1010          STRING '-save-temps '
   977 GC1010              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   978 GC1010              WITH POINTER WS-I-SUB
   979 GC1010      END-IF
   980
   981 GC0709      IF WS-CS-Extra-TXT > SPACES
   982 GC0709          STRING ' '
   983 GC0709                 TRIM(WS-CS-Extra-TXT,TRAILING)
   984 GC0709                 ' '
   985 GC0709              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   986 GC0709              WITH POINTER WS-I-SUB
   987 GC0709      END-IF
   988 GC0909      STRING TRIM(WS-Prog-File-Name-TXT,TRAILING)
   989 GC0909          DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   990 GC0909          WITH POINTER WS-I-SUB
   991      *>**************************************************************
   992      *> Prepare the compilation listing file                     **
   993      *>**************************************************************
   994 GC1113     MOVE CONCATENATE(TRIM(WS-Pgm-Nm-TXT,Trailing),'.gclst')
   995 GC0712       TO WS-Listing-Filename-TXT
   996 GC0712     CALL 'CBL_DELETE_FILE' USING WS-Listing-Filename-TXT
   997      *>**************************************************************
   998      *> Now execute the 'cobc' command                           **
   999      *>**************************************************************
  1000 GC0410     MOVE ' Compiling...' TO WS-Output-Msg-TXT
  1001 GC0410     DISPLAY S-Switches-SCR
  1002 GC0609     SET WS-RS-Output-File-Avail-BOOL TO TRUE
  1003            MOVE SPACES TO WS-Cmd-TXT
  1004            STRING TRIM(WS-Cobc-Cmd-TXT,TRAILING)
  1005 GC0712           ' >' WS-Listing-Filename-TXT
  1006 GC0712           ' 2>&1'
  1007                  DELIMITED SIZE
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 26
====== ============================================================================
 1008                   INTO WS-Cmd-TXT
 1009 DEBUG D    DISPLAY WS-Cmd-TXT UPON SYSERR
 1010            CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1011 GC0712     OPEN EXTEND F-Cobc-Output-FILE
 1012 GC0712     WRITE F-Cobc-Output-REC FROM SPACES
 1013 GC0712     IF RETURN-CODE = 0
 1014 GC0712         SET WS-RS-Compile-OK-BOOL TO TRUE
 1015 GC0712         MOVE ' Compilation Was Successful' TO WS-Output-Msg-TXT
 1016 GC0712         MOVE CONCATENATE('GNU COBOL',WS-Output-Msg-TXT)
 1017 GC0712            TO F-Cobc-Output-REC
 1018 GC0712         WRITE F-Cobc-Output-REC
 1019 GC0712         SET WS-RS-Complete-BOOL TO TRUE
 1020 GC0712     ELSE
 1021 GC0712         SET WS-RS-Compile-Failed-BOOL TO TRUE
 1022 GC0712         MOVE CONCATENATE(' Compilation Failed - See ',
 1023 GC0712                     TRIM(WS-Listing-Filename-TXT,Trailing))
 1024 GC0712            TO WS-Output-Msg-TXT
 1025 GC0712         MOVE 'GNU COBOL Compilation HAS FAILED - See Above'
 1026 GC0712            TO F-Cobc-Output-REC
 1027 GC0712         WRITE F-Cobc-Output-REC
 1028 GC0712     END-IF
 1029 GC0712     CLOSE F-Cobc-Output-FILE
 1030 GC0712     DISPLAY S-Switches-SCR
 1031 GC0712     CALL 'C$SLEEP' USING 2
 1032 GC0712     MOVE SPACES TO WS-Output-Msg-TXT
 1033            IF WS-RS-Compile-Failed-BOOL
 1034 GC0712         PERFORM 250-Autoload-Listing
 1035                PERFORM 900-Terminate
 1036        *> ----- Control will not return
 1037            END-IF
 1038            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 27
====== =========================================================================

 1040        *>************************************************************
 1041        *> Generate a source + xref listing using 'LISTING' subroutine **
 1042        *>************************************************************
 1043 GC0410 220-Make-Listing SECTION.
 1044 GC0410     MOVE ' Generating listing...' TO WS-Output-Msg-TXT
 1045 GC0410     DISPLAY S-Switches-SCR
 1046 GC0410     MOVE 0 TO RETURN-CODE
 1047        *>************************************************************
 1048        *> Create the listing                                      **
 1049        *>************************************************************
 1050 GC0410     MOVE SPACES TO WS-Output-Msg-TXT
 1051 GC0410     CALL 'LISTING' USING WS-Listing-Filename-TXT
 1052 GC0712                          WS-File-Name-TXT
 1053 GC0712                          WS-OS-Type-CD
 1054 GC1213                          LPP
 1055 GC1213                          LPPP
 1056 GC1213                          WS-Listing-CD
 1057 GC0410     ON EXCEPTION
 1058 GC0410        MOVE ' LISTING module is not available'
 1059 GC0410          TO WS-Output-Msg-TXT
 1060 GC0410        MOVE 1 TO RETURN-CODE
 1061 GC0410     END-CALL
 1062 GC0410     IF RETURN-CODE = 0
 1063 GC0712        MOVE ' Source+Xref listing generated '
 1064 GC0712          TO WS-Output-Msg-TXT
 1065 GC0410     END-IF
 1066 GC0712     DISPLAY S-Switches-SCR
 1067 GC0712     CALL 'C$SLEEP' USING 2
 1068 GC0712     PERFORM 250-Autoload-Listing
 1069 GC0410     .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 28
====== ==============================================================================

  1071        *>****************************************************************
  1072        *> Run the compiled program                                   **
  1073        *>****************************************************************
  1074         230-Run-Program SECTION.
  1075 GC0114     MOVE ' Preparing to run program ... press ENTER to close '
  1076 GC0114       TO WS-Output-Msg-TXT
  1077 GC0114     DISPLAY S-Switches-SCR
  1078 GC0114     CALL 'C$SLEEP' USING 3
  1079 GC0909     MOVE SPACES TO WS-Cmd-TXT
  1080 GC0909     MOVE 1 TO WS-I-SUB
  1081        *>****************************************************************
  1082        *> If necessary, start with 'cobcrun' command                 **
  1083        *>****************************************************************
  1084 GC0712     IF WS-CS-LIBRARY-CHR NOT = ' '
  1085                STRING 'cobcrun ' DELIMITED SIZE
  1086                    INTO WS-Cmd-TXT
  1087                    WITH POINTER WS-I-SUB
  1088            END-IF
  1089        *>****************************************************************
  1090        *> Add any necessary path prefix                              **
  1091        *>****************************************************************
  1092 GC0712     SET WS-RS-Double-Quote-Used-BOOL TO FALSE
  1093            IF WS-Prog-Folder-TXT NOT = SPACES
  1094 GC0909       IF WS-OS-Cygwin-BOOL AND WS-Prog-Folder-TXT (2:1) = ':'
  1095 GC0909           STRING '/cygdrive/'
  1096 GC0909               INTO WS-Cmd-TXT
  1097 GC0909               WITH POINTER WS-I-SUB
  1098 GC0909           STRING LOWER-CASE(WS-Prog-Folder-TXT (1:1))
  1099 GC0909               INTO WS-Cmd-TXT
  1100 GC0909               WITH POINTER WS-I-SUB
  1101 GC0909           PERFORM
  1102 GC0909               VARYING WS-J-SUB FROM 3 BY 1
  1103 GC0909               UNTIL WS-J-SUB > LENGTH(TRIM(WS-Prog-Folder-TXT))
  1104 GC0909               IF WS-Prog-Folder-TXT (WS-J-SUB:1) = '\'
  1105 GC0909                   STRING '/'
  1106 GC0909                       INTO WS-Cmd-TXT
  1107 GC0909                       WITH POINTER WS-I-SUB
  1108 GC0909               ELSE
  1109 GC0909                   STRING WS-Prog-Folder-TXT (WS-J-SUB:1)
  1110 GC0909                       INTO WS-Cmd-TXT
  1111 GC0909                       WITH POINTER WS-I-SUB
  1112 GC0909               END-IF
  1113 GC0909           END-PERFORM
  1114 GC0909         ELSE
  1115 GC0410           STRING '"' TRIM(WS-Prog-Folder-TXT,TRAILING)
  1116 GC0909               INTO WS-Cmd-TXT
  1117 GC0909               WITH POINTER WS-I-SUB
  1118 GC0712           SET WS-RS-Double-Quote-Used-BOOL TO TRUE
  1119 GC0909         END-IF
  1120 GC0712         STRING WS-OS-Dir-CHR
  1121 GC0909             INTO WS-Cmd-TXT
  1122 GC0909             WITH POINTER WS-I-SUB
```

=================================================================================================
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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 29
====== =========================================================================
 1123 GC0909     ELSE
 1124 GC0909         IF WS-OS-Cygwin-BOOL OR WS-OS-UNIX-BOOL
 1125 GC0909             STRING './'
 1126 GC0909                 INTO WS-Cmd-TXT
 1127 GC0909                 WITH POINTER WS-I-SUB
 1128 GC0909         END-IF
 1129            END-IF
 1130        *>**************************************************************
 1131        *> Insert program filename                                  **
 1132        *>**************************************************************
 1133 GC0909     STRING TRIM(WS-Pgm-Nm-TXT,TRAILING)
 1134 GC0909         INTO WS-Cmd-TXT
 1135 GC0909         WITH POINTER WS-I-SUB
 1136        *>**************************************************************
 1137        *> Insert proper extension                                  **
 1138        *>**************************************************************
 1139 GC0712     IF WS-CS-LIBRARY-CHR = ' '
 1140 GC0712         IF WS-OS-Exe-Ext-CONST > ' '
 1141 GC0712             STRING WS-OS-Exe-Ext-CONST DELIMITED SPACE
 1142 GC0712                 INTO WS-Cmd-TXT
 1143 GC0712                 WITH POINTER WS-I-SUB
 1144 GC0712         END-IF
 1145 GC0712     ELSE
 1146 GC0712         IF WS-OS-Lib-Ext-CONST > ' '
 1147 GC0712             STRING WS-OS-Lib-Ext-CONST DELIMITED SPACE
 1148 GC0712                 INTO WS-Cmd-TXT
 1149 GC0712                 WITH POINTER WS-I-SUB
 1150 GC0712         END-IF
 1151 GC0712     END-IF
 1152 GC0712     IF WS-RS-Double-Quote-Used-BOOL
 1153 GC0712         STRING '"' DELIMITED SIZE
 1154 GC0712             INTO WS-Cmd-TXT
 1155 GC0712             WITH POINTER WS-I-SUB
 1156 GC0712     END-IF
 1157            IF WS-CS-Args-TXT NOT = SPACES
 1158 GC0809         STRING ' ' TRIM(WS-CS-Args-TXT,TRAILING)
 1159                 INTO WS-Cmd-TXT
 1160                 WITH POINTER WS-I-SUB
 1161            END-IF
 1162        *>**************************************************************
 1163        *> Run the program                                          **
 1164        *>**************************************************************
 1165 GC0114     CALL X'E4'
 1166            CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1167 GC0712     MOVE SPACES TO WS-Output-Msg-TXT
 1168 GC0114     ACCEPT WS-Output-Msg-TXT(1:1) AT 0101
 1169            PERFORM 900-Terminate
 1170        * -- Control will NOT return
 1171            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                      Page: 30
====== =========================================================================

  1173        *>***************************************************************
  1174        *> Determine if the program being compiled is a MAIN program   **
  1175        *>***************************************************************
  1176         240-Find-LINKAGE-SECTION SECTION.
  1177            OPEN INPUT F-Source-Code-FILE
  1178 GC0712    MOVE ' ' TO WS-CS-LIBRARY-CHR
  1179            SET WS-RS-More-To-1st-Prog-BOOL   TO TRUE
  1180            PERFORM UNTIL WS-RS-1st-Prog-Complete-BOOL
  1181                READ F-Source-Code-FILE AT END
  1182                    CLOSE F-Source-Code-FILE
  1183                    EXIT SECTION
  1184                END-READ
  1185 GC0712        CALL 'CHECKSRC'
  1186 GC0712            USING BY CONTENT   F-Source-Code-REC
  1187 GC0712                  BY REFERENCE WS-RS-Source-Record-Type-CHR
  1188                IF WS-RS-Source-Rec-Ident-BOOL
  1189                    SET WS-RS-1st-Prog-Complete-BOOL TO TRUE
  1190                END-IF
  1191            END-PERFORM
  1192 GC0712    SET WS-RS-Source-Rec-Ignored-BOOL TO TRUE
  1193            PERFORM UNTIL WS-RS-Source-Rec-Linkage-BOOL
  1194                    OR WS-RS-Source-Rec-Ident-BOOL
  1195                READ F-Source-Code-FILE AT END
  1196                    CLOSE F-Source-Code-FILE
  1197                    EXIT SECTION
  1198                END-READ
  1199 GC0712        CALL 'CHECKSRC'
  1200 GC0712            USING BY CONTENT   F-Source-Code-REC
  1201 GC0712                  BY REFERENCE WS-RS-Source-Record-Type-CHR
  1202            END-PERFORM
  1203            CLOSE F-Source-Code-FILE
  1204            IF WS-RS-Source-Rec-Linkage-BOOL
  1205 GC0712        MOVE SELCHAR TO WS-CS-LIBRARY-CHR
  1206            END-IF
  1207            .
```

```
======================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 30
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                         Page: 31
====== =========================================================================

  1209 GC0712*>****************************************************************
  1210 GC0712*> Attempt to open the listing file as a command.  This will - **
  1211 GC1113*> if the user has associated filetype/extension 'gclst' with  **
  1212 GC0712*> an application - invoke the appropriate application to       **
  1213 GC0712*> allow the user to view the listing.                         **
  1214 GC0712*>****************************************************************'
  1215 GC0712 250-Autoload-Listing SECTION.
  1216 GC0712     EVALUATE TRUE
  1217 GC0712         WHEN WS-OS-Windows-BOOL OR WS-OS-Cygwin-BOOL
  1218 GC0712             MOVE SPACES TO WS-Cmd-TXT
  1219 GC0712             STRING
  1220 GC0712                 'cmd /c '
  1221 GC0712                 TRIM(WS-Listing-Filename-TXT,TRAILING)
  1222 GC0712                 DELIMITED SIZE INTO WS-Cmd-TXT
  1223 GC0712             CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
  1224 GC0712         WHEN WS-OS-OSX-BOOL
  1225 GC0712             MOVE SPACES TO WS-Cmd-TXT
  1226 GC0712             STRING
  1227 GC0712                 'open -t '
  1228 GC0712                 TRIM(WS-Listing-Filename-TXT,TRAILING)
  1229 GC0712                 DELIMITED SIZE INTO WS-Cmd-TXT
  1230 GC0712             CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
  1231 GC0712     END-EVALUATE
  1232 GC0712*>    ************************************************************
  1233 GC0712*>    ** Since we had to do our own '-save-temps' when we       **
  1234 GC0712*>    ** compiled (in order to generate the cross-reference     **
  1235 GC0712*>    ** listing) we now need to clean up after ourselves.      **
  1236 GC0712*>    ************************************************************
  1237 GC1112     DISPLAY S-Blank-SCR
  1238 GC0712     IF WS-OS-Windows-BOOL
  1239 GC0712         MOVE CONCATENATE('del ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
  1240 GC0712           TO WS-Cmd-TXT
  1241 GC0712     ELSE
  1242 GC0712         MOVE CONCATENATE('rm ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
  1243 GC0712           TO WS-Cmd-TXT
  1244 GC0712     END-IF
  1245 GC0712     CALL 'SYSTEM'
  1246 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c')
  1247 GC0712     CALL 'SYSTEM'
  1248 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.h')
  1249 GC0712     CALL 'SYSTEM'
  1250 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.l*.h')
  1251 GC0712     CALL 'SYSTEM'
  1252 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.i')
  1253 GC0712     CALL 'SYSTEM'
  1254 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.o')
  1255
  1256 GC0712     .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 32
====== ================================================================================

  1258         *>**********************************************************
  1259         *> Display a message and halt the program                **
  1260         *>**********************************************************
  1261          900-Terminate SECTION.
  1262 GC0909     IF WS-Output-Msg-TXT > SPACES
  1263 GC0909         DISPLAY S-Switches-SCR
  1264 GC0909         CALL 'C$SLEEP' USING 2
  1265 GC0909     END-IF
  1266            DISPLAY S-Blank-SCR
  1267            STOP RUN
  1268            .
  1269
  1270         END PROGRAM GCic.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                          2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 33
====== =========================================================================

 1272        IDENTIFICATION DIVISION.
 1273        PROGRAM-ID.  CHECKSRC.
 1274        *>****************************************************************
 1275        *> This subprogram will scan a line of source code it is given **
 1276        *> looking for 'LINKAGE SECTION' or 'IDENTIFICATION DIVISION'. **
 1277        *>                                                             **
 1278        *>  ****NOTE****   ****NOTE****   ****NOTE****   ****NOTE***  **
 1279        *>                                                             **
 1280        *> These two strings must be found IN THEIR ENTIRETY within    **
 1281        *> the 1st 80 columns of program source records, and cannot    **
 1282        *> follow either a '*>' sequence OR a '*' in col 7.            **
 1283        *>****************************************************************
 1284        *>  DATE   CHANGE DESCRIPTION                                  **
 1285        *> ====== ===================================================== **
 1286        *> GC0809 Initial coding.                                      **
 1287        *>****************************************************************
 1288        ENVIRONMENT DIVISION.
 1289        CONFIGURATION SECTION.
 1290        REPOSITORY.
 1291            FUNCTION ALL INTRINSIC.
 1292        DATA DIVISION.
 1293        WORKING-STORAGE SECTION.
 1294        01  WS-Compressed-Src-TXT.
 1295            05 WS-CS-CHR                      OCCURS 80 TIMES
 1296                                              PIC X(1).
 1297
 1298        01  WS-Runtime-Switches-TXT.
 1299            05 WS-RS-Found-SPACE-CHR          PIC X(1).
 1300               88 WS-RS-Skipping-SPACE-BOOL     VALUE 'Y'.
 1301               88 WS-RS-Not-Skipping-SPACE-BOOL VALUE 'N'.
 1302
 1303        01  WS-I-SUB                          USAGE BINARY-CHAR.
 1304
 1305        01  WS-J-SUB                          USAGE BINARY-CHAR.
 1306        LINKAGE SECTION.
 1307        01  L-Argument-1-TXT.
 1308            02 L-A1-CHR                       OCCURS 80 TIMES
 1309                                              PIC X(1).
 1310
 1311        01  L-Argument-2-CHR                  PIC X(1).
 1312            88 L-A2-LINKAGE-SECTION-BOOL VALUE 'L'.
 1313            88 L-A2-IDENT-DIVISION-BOOL  VALUE 'I'.
 1314            88 L-A2-Nothing-Special-BOOL VALUE ' '.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                      Page: 34
====== =========================================================================

  1316 GC0712 PROCEDURE DIVISION USING BY VALUE     L-Argument-1-TXT
  1317 GC0712                          BY REFERENCE L-Argument-2-CHR.
  1318       000-Main SECTION.
  1319           SET L-A2-Nothing-Special-BOOL TO TRUE
  1320           IF L-A1-CHR (7) = '*'
  1321               GOBACK
  1322           END-IF
  1323               .
  1324       *>
  1325       *> Compress multiple consecutive spaces
  1326       *>
  1327           SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
  1328           MOVE 0 TO WS-J-SUB
  1329           MOVE SPACES TO WS-Compressed-Src-TXT
  1330           PERFORM VARYING WS-I-SUB FROM 1 BY 1
  1331                   UNTIL WS-I-SUB > 80
  1332             IF L-A1-CHR (WS-I-SUB) = SPACE
  1333                 IF WS-RS-Not-Skipping-SPACE-BOOL
  1334                     ADD 1 TO WS-J-SUB
  1335                     MOVE UPPER-CASE(L-A1-CHR (WS-I-SUB))
  1336                       TO WS-CS-CHR (WS-J-SUB)
  1337                     SET WS-RS-Skipping-SPACE-BOOL TO TRUE
  1338                 END-IF
  1339             ELSE
  1340                 SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
  1341                 ADD 1 TO WS-J-SUB
  1342                 MOVE L-A1-CHR (WS-I-SUB) TO WS-CS-CHR (WS-J-SUB)
  1343             END-IF
  1344           END-PERFORM
  1345       *>
  1346       *> Scan the compressed source line
  1347       *>
  1348           PERFORM VARYING WS-I-SUB FROM 1 BY 1
  1349                   UNTIL WS-I-SUB > 66
  1350             EVALUATE TRUE
  1351                 WHEN WS-CS-CHR (WS-I-SUB) = '*'
  1352                     IF WS-Compressed-Src-TXT (WS-I-SUB : 2) = '*>'
  1353                         GOBACK
  1354                     END-IF
  1355                 WHEN (WS-CS-CHR (WS-I-SUB) = 'L') AND (WS-I-SUB < 66)
  1356                     IF WS-Compressed-Src-TXT (WS-I-SUB : 15)
  1357                        = 'LINKAGE SECTION'
  1358                         SET L-A2-LINKAGE-SECTION-BOOL TO TRUE
  1359                         GOBACK
  1360                     END-IF
  1361                 WHEN (WS-CS-CHR (WS-I-SUB) = 'I') AND (WS-I-SUB < 58)
  1362                     IF WS-Compressed-Src-TXT (WS-I-SUB : 23)
  1363                        = 'IDENTIFICATION DIVISION'
  1364                         SET L-A2-IDENT-DIVISION-BOOL TO TRUE
  1365                         GOBACK
  1366                     END-IF
  1367             END-EVALUATE
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 35
====== =========================================================================
 1368          END-PERFORM
 1369      *>
 1370      *> If we get to here, we never found anything!
 1371      *>
 1372 +        GOBACK
 1373          .
 1374       END PROGRAM CHECKSRC.
 1375
 1376       IDENTIFICATION DIVISION.
 1377       PROGRAM-ID.  LISTING.
 1378      *>****************************************************************
 1379      *> This subprogram generates a cross-reference listing of an   **
 1380      *> GNU COBOL program.                                          **
 1381      *>****************************************************************
 1382      *>                                                             **
 1383      *> AUTHOR:      GARY L. CUTLER                                 **
 1384      *>                 Copyright (C) 2010, Gary L. Cutler, GPL      **
 1385      *>                                                             **
 1386      *> DATE-WRITTEN: April 1, 2010                                 **
 1387      *>                                                             **
 1388      *>****************************************************************
 1389      *>  DATE  CHANGE DESCRIPTION                                   **
 1390      *> ====== ==================================================== **
 1391      *> GC0410 Initial coding                                       **
 1392      *> GC0711 Updates to accommodate the 12MAR2010 version of OC   **
 1393      *> GC0710 Handle duplicate data names (i.e. 'CORRESPONDING' or **
 1394      *>        qualified items) better; ignore 'END PROGRAM' recs   **
 1395      *>        so program name doesn't appear in listing.           **
 1396      *> GC0313 Fix problem where the first procedure name defined   **
 1397      *>        in the PROCEDURE DIVISION lacks a "Defined" line      **
 1398      *>        number.                                              **
 1399      *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1; Stop **
 1400      *>        showing functions as if they were identifiers in the **
 1401      *>        xref listing; Flag all CALL argument references with **
 1402      *>        a "C" rather than "*" because they aren't necessari- **
 1403      *>        ly altered; Fixed assorted formatting bugs; DOWN-    **
 1404      *>        WARD COMPATIBLE WITH GNU COBOL 2.0 SYNTAX            **
 1405      *> GC0314 Fix problem where 1st char of 1st token on a line is **
 1406      *>        lost if >>SOURCE MODE IS FREE is in effect and the   **
 1407      *>        1st character is non-blank.                          **
 1408      *> VC1217 Updated compiler version & date to v3.0 & 24DEC2017. **
 1409      *>****************************************************************
 1410       ENVIRONMENT DIVISION.
 1411       CONFIGURATION SECTION.
 1412       REPOSITORY.
 1413           FUNCTION ALL INTRINSIC.
 1414       INPUT-OUTPUT SECTION.
 1415       FILE-CONTROL.
 1416           SELECT F-Expanded-Src-FILE  ASSIGN TO WS-Expanded-Src-Fn-TXT
 1417                                       ORGANIZATION IS LINE SEQUENTIAL.
 1418 GC0712    SELECT F-Listing-FILE       ASSIGN TO L-Listing-Fn-TXT
 1419                                       ORGANIZATION IS LINE SEQUENTIAL.
 1420           SELECT F-Original-Src-FILE  ASSIGN TO L-Src-Fn-TXT
```

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                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 36
======  ========================================================================
 1421                                     ORGANIZATION IS LINE SEQUENTIAL.
 1422           SELECT F-Sort-Work-FILE    ASSIGN TO DISK.
 1423         DATA DIVISION.
 1424         FILE SECTION.
 1425         FD  F-Expanded-Src-FILE.
 1426         01  F-Expanded-Src-REC.
 1427             05 F-ES-1-CHR                    PIC X.
 1428             05 F-ES-2-256-TXT-256            PIC X(256).
 1429 GC0712 01  F-Expanded-Src2-REC.
 1430 GC0712     05 F-ES-1-7-TXT                   PIC X(7).
 1431 GC0712     05 F-ES-8-256-TXT                 PIC X(249).
 1432
 1433 GC0712 FD  F-Listing-FILE.
 1434 GC1213 01  F-Listing-96-REC                  PIC X(96).
 1435 GC1213 01  F-Listing-135-REC                 PIC X(135).
 1436        01  F-Listing-REC                     PIC X(135).
 1437
 1438         FD  F-Original-Src-FILE.
 1439         01  F-Original-Src-REC.
 1440 GC0410     05 F-OS-1-128-TXT.
 1441 GC0410        10 FILLER                      PIC X(6).
 1442 GC0410        10 F-OS-7-CHR                  PIC X(1).
 1443 GC0712        10 F-OS-8-72-TXT               PIC X(65).
 1444 GC0712        10 FILLER                      PIC X(56).
 1445             05 F-OS-129-256-TXT              PIC X(128).
 1446
 1447         SD  F-Sort-Work-FILE.
 1448         01  F-Sort-Work-REC.
 1449             05 F-SW-Prog-ID-TXT              PIC X(15).
 1450             05 F-SW-Token-Uc-TXT             PIC X(32).
 1451             05 F-SW-Token-TXT                PIC X(32).
 1452             05 F-SW-Section-TXT              PIC X(15).
 1453             05 F-SW-Def-Line-NUM             PIC 9(6).
 1454             05 F-SW-Reference-TXT.
 1455                10 F-SW-Ref-Line-NUM          PIC 9(6).
 1456                10 F-SW-Ref-Flag-CHR          PIC X(1).
 1457
 1458         WORKING-STORAGE SECTION.
 1459 GC1213 01  WS-Copyright-TXT                  PIC X(86).
 1460
 1461        01  WS-Curr-CHR                       PIC X(1).
 1462            88 WS-Curr-Char-Is-Punct-BOOL     VALUE '=', '(', ')',
 1463                                              '*', '/', '&',
 1464                                              ';', ',', '<',
 1465                                              '>', ':'.
 1466            88 WS-Curr-Char-Is-Quote-BOOL     VALUE "'", '"'.
 1467            88 WS-Curr-Char-Is-X-BOOL         VALUE 'x', 'X'.
 1468            88 WS-Curr-Char-Is-Z-BOOL         VALUE 'z', 'Z'.
 1469
 1470        01  WS-Curr-Division-TXT              PIC X(1).
 1471 GC1010     88 WS-CD-In-IDENT-DIV-BOOL        VALUE 'i', 'I', '?'.
 1472 GC1010     88 WS-CD-In-ENV-DIV-BOOL          VALUE 'e', 'E'.
 1473 GC1010     88 WS-CD-In-DATA-DIV-BOOL         VALUE 'd', 'D'.
```

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Line    Statement                                                          Page: 37
====== ================================================================================
 1474 GC1010      88 WS-CD-In-PROC-DIV-BOOL            VALUE 'p', 'P'.
 1475
 1476        01  WS-Curr-Line-NUM                      PIC 9(6).
 1477
 1478        01  WS-Curr-Prog-ID-TXT.
 1479            05 FILLER                             PIC X(12).
 1480            05 WS-CPI-13-15-TXT                   PIC X(3).
 1481 GC0712     05 WS-CPI-16-CHR                      PIC X(1).
 1482
 1483        01  WS-Curr-Section-TXT.
 1484            05 WS-CS-1-CHR                        PIC X(1).
 1485            05 WS-CS-2-14-TXT.
 1486                10 FILLER                         PIC X(10).
 1487                10 WS-CS-11-14-TXT                PIC X(3).
 1488            05 WS-CS-15-CHR                       PIC X(1).
 1489
 1490        01  WS-Curr-Verb-TXT                      PIC X(12).
 1491
 1492        01  WS-Delim-TXT                          PIC X(2).
 1493
 1494        01  WS-Dummy-TXT                          PIC X(1).
 1495
 1496        01  WS-Expanded-Src-Fn-TXT                PIC X(256).
 1497
 1498        01  WS-Filename-TXT                       PIC X(256).
 1499
 1500 GC1213 01  WS-Flags-TXT.
 1501 GC1213     05 WS-Suppress-FF-CHR                 PIC X(1).
 1502
 1503 GC1213 01  WS-Formatted-DT                       PIC 9999/99/99.
 1504
 1505        01  WS-Group-Indicators-TXT.
 1506            05 WS-GI-Prog-ID-TXT                  PIC X(15).
 1507            05 WS-GI-Token-TXT                    PIC X(32).
 1508
 1509        01  WS-Held-Reference-TXT                 PIC X(100).
 1510
 1511        01  WS-I-SUB                              USAGE BINARY-LONG.
 1512
 1513        01  WS-J-SUB                              USAGE BINARY-LONG.
 1514
 1515        01  WS-Lines-Left-NUM                     USAGE BINARY-LONG.
 1516
 1517        01  WS-Lines-Per-Page-NUM                 USAGE BINARY-LONG.
 1518
 1519        01  WS-Lines-Per-Page-Env-TXT             PIC X(256).
 1520
 1521 GC1010 01  WS-Main-Module-Name-TXT               PIC X(256).
 1522
 1523        01  WS-Next-CHR                           PIC X(1).
 1524            88 WS-Next-Char-Is-Quote-BOOL         VALUE '"', "'".
 1525
 1526        01  WS-OS-Type-FILLER-TXT.
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 38
====== =================================================================================
 1527           05 VALUE 'Windows'                PIC X(14).
 1528           05 VALUE 'Windows/Cygwin'         PIC X(14).
 1529           05 VALUE 'UNIX/Linux'             PIC X(14).
 1530           05 VALUE 'OSX'                    PIC X(14).
 1531           05 VALUE 'Windows/MinGW'          PIC X(14).
 1532       01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
 1533           05 WS-OS-Type-TXT                 PIC X(14)
 1534                                    OCCURS 5 TIMES .
 1535
 1536 GC0712 01  WS-Page-NUM                      USAGE BINARY-LONG.
 1537
 1538 GC0712 01  WS-Page-No-TXT.
 1539 GC0712     05 WS-PN-Literal-TXT             PIC X(6).
 1540 GC0712     05 WS-PN-Page-NUM                PIC Z(3)9.
 1541
 1542 GC1213 01  WS-Program-Path-TXT             PIC X(135).
 1543
 1544       01  WS-Reserved-Words-TXT.
 1545           05 VALUE '                        ' PIC X(33).
 1546 GC1213     05 VALUE 'FABS                   ' PIC X(33).
 1547           05 VALUE 'VACCEPT                 ' PIC X(33).
 1548           05 VALUE ' ACCESS                 ' PIC X(33).
 1549 GC1213     05 VALUE 'FACOS                  ' PIC X(33).
 1550           05 VALUE ' ACTIVE-CLASS           ' PIC X(33).     UNIMPLEMENTED
 1551           05 VALUE 'VADD                    ' PIC X(33).
 1552           05 VALUE ' ADDRESS                ' PIC X(33).
 1553           05 VALUE ' ADVANCING              ' PIC X(33).
 1554           05 VALUE 'KAFTER                  ' PIC X(33).
 1555           05 VALUE ' ALIGNED                ' PIC X(33).     UNIMPLEMENTED
 1556           05 VALUE ' ALL                    ' PIC X(33).
 1557           05 VALUE 'VALLOCATE               ' PIC X(33).
 1558           05 VALUE ' ALPHABET               ' PIC X(33).
 1559           05 VALUE ' ALPHABETIC             ' PIC X(33).
 1560           05 VALUE ' ALPHABETIC-LOWER       ' PIC X(33).
 1561           05 VALUE ' ALPHABETIC-UPPER       ' PIC X(33).
 1562           05 VALUE ' ALPHANUMERIC           ' PIC X(33).
 1563           05 VALUE ' ALPHANUMERIC-EDITED    ' PIC X(33).
 1564           05 VALUE ' ALSO                   ' PIC X(33).
 1565           05 VALUE 'VALTER                  ' PIC X(33).
 1566           05 VALUE ' ALTERNATE              ' PIC X(33).
 1567           05 VALUE ' AND                    ' PIC X(33).
 1568 GC1213     05 VALUE 'FANNUITY               ' PIC X(33).
 1569           05 VALUE ' ANY                    ' PIC X(33).
 1570           05 VALUE ' ANYCASE                ' PIC X(33).     UNIMPLEMENTED
 1571           05 VALUE ' ARE                    ' PIC X(33).
 1572           05 VALUE ' AREA                   ' PIC X(33).
 1573           05 VALUE ' AREAS                  ' PIC X(33).
 1574           05 VALUE ' ARGUMENT-NUMBER        ' PIC X(33).
 1575           05 VALUE ' ARGUMENT-VALUE         ' PIC X(33).
 1576           05 VALUE ' ARITHMETIC             ' PIC X(33).     UNIMPLEMENTED
 1577           05 VALUE ' AS                     ' PIC X(33).
 1578           05 VALUE ' ASCENDING              ' PIC X(33).
 1579           05 VALUE ' ASCII                  ' PIC X(33).
```

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                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 39
====== =========================================================================
 1580 GC1213      05 VALUE 'FASIN                  ' PIC X(33).
 1581             05 VALUE ' ASSIGN                ' PIC X(33).
 1582             05 VALUE ' AT                    ' PIC X(33).
 1583 GC1213      05 VALUE 'FATAN                  ' PIC X(33).
 1584 GC0711      05 VALUE ' ATTRIBUTE             ' PIC X(33).
 1585             05 VALUE ' AUTHOR                ' PIC X(33).    OBSOLETE
 1586             05 VALUE ' AUTO                  ' PIC X(33).
 1587             05 VALUE ' AUTO-SKIP             ' PIC X(33).
 1588             05 VALUE ' AUTOMATIC             ' PIC X(33).
 1589             05 VALUE ' AUTOTERMINATE         ' PIC X(33).
 1590             05 VALUE ' AWAY-FROM-ZERO        ' PIC X(33).
 1591             05 VALUE ' B-AND                 ' PIC X(33).    UNIMPLEMENTED
 1592             05 VALUE ' B-NOT                 ' PIC X(33).    UNIMPLEMENTED
 1593             05 VALUE ' B-OR                  ' PIC X(33).    UNIMPLEMENTED
 1594             05 VALUE ' B-XOR                 ' PIC X(33).    UNIMPLEMENTED
 1595             05 VALUE ' BACKGROUND-COLOR      ' PIC X(33).
 1596             05 VALUE ' BACKGROUND-COLOUR     ' PIC X(33).
 1597             05 VALUE ' BASED                 ' PIC X(33).
 1598             05 VALUE ' BEEP                  ' PIC X(33).
 1599             05 VALUE ' BEFORE                ' PIC X(33).
 1600             05 VALUE ' BELL                  ' PIC X(33).
 1601             05 VALUE ' BINARY                ' PIC X(33).
 1602             05 VALUE ' BINARY-C-LONG         ' PIC X(33).
 1603             05 VALUE ' BINARY-CHAR           ' PIC X(33).
 1604             05 VALUE ' BINARY-DOUBLE         ' PIC X(33).
 1605             05 VALUE ' BINARY-INT            ' PIC X(33).
 1606             05 VALUE ' BINARY-LONG           ' PIC X(33).
 1607             05 VALUE ' BINARY-LONG-LONG      ' PIC X(33).
 1608             05 VALUE ' BINARY-SHORT          ' PIC X(33).
 1609             05 VALUE ' BIT                   ' PIC X(33).    UNIMPLEMENTED
 1610             05 VALUE ' BLANK                 ' PIC X(33).
 1611             05 VALUE ' BLINK                 ' PIC X(33).
 1612             05 VALUE ' BLOCK                 ' PIC X(33).
 1613             05 VALUE ' BOOLEAN               ' PIC X(33).    UNIMPLEMENTED
 1614 GC1213      05 VALUE 'FBOOLEAN-OF-INTEGER    ' PIC X(33).    UNIMPLEMENTED
 1615             05 VALUE ' BOTTOM                ' PIC X(33).
 1616             05 VALUE 'YBY                    ' PIC X(33).
 1617 GC1213      05 VALUE 'FBYTE-LENGTH           ' PIC X(33).
 1618             05 VALUE 'MC01                   ' PIC X(33).
 1619             05 VALUE 'MC02                   ' PIC X(33).
 1620             05 VALUE 'MC03                   ' PIC X(33).
 1621             05 VALUE 'MC04                   ' PIC X(33).
 1622             05 VALUE 'MC05                   ' PIC X(33).
 1623             05 VALUE 'MC06                   ' PIC X(33).
 1624             05 VALUE 'MC07                   ' PIC X(33).
 1625             05 VALUE 'MC08                   ' PIC X(33).
 1626             05 VALUE 'MC09                   ' PIC X(33).
 1627             05 VALUE 'MC10                   ' PIC X(33).
 1628             05 VALUE 'MC11                   ' PIC X(33).
 1629             05 VALUE 'MC12                   ' PIC X(33).
 1630             05 VALUE 'VCALL                  ' PIC X(33).
 1631             05 VALUE 'MCALL-CONVENTION       ' PIC X(33).
 1632             05 VALUE 'VCANCEL                ' PIC X(33).
```

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Line    Statement                                                         Page: 40
====== ==========================================================================================
 1633           05 VALUE ' CAPACITY                    ' PIC X(33).    UNIMPLEMENTED
 1634           05 VALUE ' CD                          ' PIC X(33).    OBSOLETE
 1635           05 VALUE ' CENTER                      ' PIC X(33).    UNIMPLEMENTED
 1636           05 VALUE ' CF                          ' PIC X(33).
 1637           05 VALUE ' CH                          ' PIC X(33).
 1638           05 VALUE ' CHAIN                       ' PIC X(33).    UNIMPLEMENTED
 1639           05 VALUE ' CHAINING                    ' PIC X(33).
 1640 GC1213    05 VALUE 'FCHAR                        ' PIC X(33).
 1641 GC1213    05 VALUE 'FCHAR-NATIONAL               ' PIC X(33).    UNIMPLEMENTED
 1642           05 VALUE ' CHARACTER                   ' PIC X(33).
 1643           05 VALUE ' CHARACTERS                  ' PIC X(33).
 1644           05 VALUE ' CLASS                       ' PIC X(33).
 1645           05 VALUE ' CLASS-ID                    ' PIC X(33).    UNIMPLEMENTED
 1646 GC0711    05 VALUE ' CLASSIFICATION              ' PIC X(33).
 1647           05 VALUE 'VCLOSE                       ' PIC X(33).
 1648 GC1213    05 VALUE 'FCOB-CRT-STATUS              ' PIC X(33).
 1649           05 VALUE ' CODE                        ' PIC X(33).
 1650           05 VALUE ' CODE-SET                    ' PIC X(33).
 1651           05 VALUE ' COL                         ' PIC X(33).
 1652           05 VALUE ' COLLATING                   ' PIC X(33).
 1653           05 VALUE ' COLS                        ' PIC X(33).
 1654           05 VALUE ' COLUMN                      ' PIC X(33).
 1655           05 VALUE ' COLUMNS                     ' PIC X(33).
 1656 GC1213    05 VALUE 'FCOMBINED-DATETIME           ' PIC X(33).
 1657           05 VALUE ' COMMA                       ' PIC X(33).
 1658           05 VALUE ' COMMAND-LINE                ' PIC X(33).
 1659           05 VALUE 'VCOMMIT                      ' PIC X(33).
 1660           05 VALUE ' COMMON                      ' PIC X(33).
 1661           05 VALUE ' COMMUNICATION               ' PIC X(33).    OBSOLETE
 1662           05 VALUE ' COMP                        ' PIC X(33).
 1663           05 VALUE ' COMP-1                      ' PIC X(33).
 1664           05 VALUE ' COMP-2                      ' PIC X(33).
 1665           05 VALUE ' COMP-3                      ' PIC X(33).
 1666           05 VALUE ' COMP-4                      ' PIC X(33).
 1667           05 VALUE ' COMP-5                      ' PIC X(33).
 1668           05 VALUE ' COMP-6                      ' PIC X(33).
 1669           05 VALUE ' COMP-X                      ' PIC X(33).
 1670           05 VALUE ' COMPUTATIONAL               ' PIC X(33).
 1671           05 VALUE ' COMPUTATIONAL-1             ' PIC X(33).
 1672           05 VALUE ' COMPUTATIONAL-2             ' PIC X(33).
 1673           05 VALUE ' COMPUTATIONAL-3             ' PIC X(33).
 1674           05 VALUE ' COMPUTATIONAL-4             ' PIC X(33).
 1675           05 VALUE ' COMPUTATIONAL-5             ' PIC X(33).
 1676           05 VALUE ' COMPUTATIONAL-X             ' PIC X(33).
 1677           05 VALUE 'VCOMPUTE                     ' PIC X(33).
 1678 GC1213    05 VALUE 'FCONCATENATE                 ' PIC X(33).
 1679 GC0712    05 VALUE ' CONDITION                   ' PIC X(33).
 1680           05 VALUE 'KCONFIGURATION               ' PIC X(33).
 1681           05 VALUE 'MCONSOLE                     ' PIC X(33).
 1682           05 VALUE ' CONSTANT                    ' PIC X(33).
 1683           05 VALUE ' CONTAINS                    ' PIC X(33).
 1684 GC0712    05 VALUE 'ACONTENT                     ' PIC X(33).
 1685           05 VALUE 'VCONTINUE                    ' PIC X(33).
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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 41
====== =========================================================================
 1686             05 VALUE ' CONTROL                 ' PIC X(33).
 1687             05 VALUE ' CONTROLS                ' PIC X(33).
 1688 GC0711      05 VALUE ' CONVERSION              ' PIC X(33).
 1689             05 VALUE 'KCONVERTING              ' PIC X(33).
 1690             05 VALUE ' COPY                    ' PIC X(33).
 1691             05 VALUE ' CORR                    ' PIC X(33).
 1692             05 VALUE ' CORRESPONDING           ' PIC X(33).
 1693 GC1213      05 VALUE 'FCOS                     ' PIC X(33).
 1694             05 VALUE 'KCOUNT                   ' PIC X(33).
 1695             05 VALUE ' CRT                     ' PIC X(33).
 1696             05 VALUE ' CRT-UNDER               ' PIC X(33).
 1697             05 VALUE 'MCSP                     ' PIC X(33).
 1698             05 VALUE ' CURRENCY                ' PIC X(33).
 1699 GC1213      05 VALUE 'FCURRENCY-SYMBOL         ' PIC X(33).
 1700 GC1213      05 VALUE 'FCURRENT-DATE            ' PIC X(33).
 1701             05 VALUE ' CURSOR                  ' PIC X(33).
 1702             05 VALUE ' CYCLE                   ' PIC X(33).
 1703             05 VALUE 'KDATA                    ' PIC X(33).
 1704             05 VALUE ' DATA-POINTER            ' PIC X(33).    UNIMPLEMENTED
 1705             05 VALUE ' DATE                    ' PIC X(33).
 1706             05 VALUE ' DATE-COMPILED           ' PIC X(33).    OBSOLETE
 1707             05 VALUE ' DATE-MODIFIED           ' PIC X(33).    OBSOLETE
 1708 GC1213      05 VALUE 'FDATE-OF-INTEGER         ' PIC X(33).
 1709 GC1213      05 VALUE 'FDATE-TO-YYYYMMDD        ' PIC X(33).
 1710             05 VALUE ' DATE-WRITTEN            ' PIC X(33).    OBSOLETE
 1711             05 VALUE ' DAY                     ' PIC X(33).
 1712 GC1213      05 VALUE 'FDAY-OF-INTEGER          ' PIC X(33).
 1713             05 VALUE ' DAY-OF-WEEK             ' PIC X(33).
 1714 GC1213      05 VALUE 'IDAY-TO-YYYYDDD          ' PIC X(33).
 1715             05 VALUE ' DE                      ' PIC X(33).
 1716 GC0712      05 VALUE 'IDEBUG-CONTENTS          ' PIC X(33).
 1717 GC0712      05 VALUE 'IDEBUG-ITEM              ' PIC X(33).
 1718 GC0712      05 VALUE 'IDEBUG-LINE              ' PIC X(33).
 1719 GC0712      05 VALUE 'IDEBUG-NAME              ' PIC X(33).
 1720 GC0712      05 VALUE 'IDEBUG-SUB-1             ' PIC X(33).
 1721 GC0712      05 VALUE 'IDEBUG-SUB-2             ' PIC X(33).
 1722 GC0712      05 VALUE 'IDEBUG-SUB-3             ' PIC X(33).
 1723             05 VALUE ' DEBUGGING               ' PIC X(33).
 1724             05 VALUE ' DECIMAL-POINT           ' PIC X(33).
 1725             05 VALUE ' DECLARATIVES            ' PIC X(33).
 1726             05 VALUE ' DEFAULT                 ' PIC X(33).
 1727             05 VALUE 'VDELETE                  ' PIC X(33).
 1728             05 VALUE ' DELIMITED               ' PIC X(33).
 1729             05 VALUE 'KDELIMITER               ' PIC X(33).
 1730             05 VALUE ' DEPENDING               ' PIC X(33).
 1731             05 VALUE ' DESCENDING              ' PIC X(33).
 1732             05 VALUE ' DESTINATION             ' PIC X(33).    UNIMPLEMENTED
 1733             05 VALUE ' DETAIL                  ' PIC X(33).
 1734 GC0711      05 VALUE ' DISC                    ' PIC X(33).
 1735             05 VALUE ' DISK                    ' PIC X(33).
 1736             05 VALUE 'VDISPLAY                 ' PIC X(33).
 1737 GC1213      05 VALUE 'FDISPLAY-OF              ' PIC X(33).    UNIMPLEMENTED
 1738             05 VALUE 'VDIVIDE                  ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 42
====== ==========================================================================================
 1739              05 VALUE 'KDIVISION                  ' PIC X(33).
 1740              05 VALUE 'KDOWN                      ' PIC X(33).
 1741              05 VALUE ' DUPLICATES                ' PIC X(33).
 1742              05 VALUE ' DYNAMIC                   ' PIC X(33).
 1743 GC1213       05 VALUE 'FE                         ' PIC X(33).
 1744              05 VALUE ' EBCDIC                    ' PIC X(33).
 1745 GC0712       05 VALUE ' EC                        ' PIC X(33).
 1746              05 VALUE ' EGI                       ' PIC X(33).    OBSOLETE
 1747              05 VALUE 'VELSE                      ' PIC X(33).
 1748              05 VALUE ' EMI                       ' PIC X(33).    OBSOLETE
 1749              05 VALUE ' EMPTY-CHECK               ' PIC X(33).
 1750              05 VALUE 'VENABLE                    ' PIC X(33).    OBSOLETE
 1751 GC0710       05 VALUE 'KEND                       ' PIC X(33).
 1752              05 VALUE ' END-ACCEPT                ' PIC X(33).
 1753              05 VALUE ' END-ADD                   ' PIC X(33).
 1754              05 VALUE ' END-CALL                  ' PIC X(33).
 1755              05 VALUE ' END-CHAIN                 ' PIC X(33).    UNIMPLEMENTED
 1756              05 VALUE ' END-COMPUTE               ' PIC X(33).
 1757              05 VALUE ' END-DELETE                ' PIC X(33).
 1758              05 VALUE ' END-DISPLAY               ' PIC X(33).
 1759              05 VALUE ' END-DIVIDE                ' PIC X(33).
 1760              05 VALUE ' END-EVALUATE              ' PIC X(33).
 1761              05 VALUE ' END-IF                    ' PIC X(33).
 1762              05 VALUE ' END-MULTIPLY              ' PIC X(33).
 1763              05 VALUE ' END-OF-PAGE               ' PIC X(33).
 1764              05 VALUE ' END-PERFORM               ' PIC X(33).
 1765              05 VALUE ' END-READ                  ' PIC X(33).
 1766              05 VALUE ' END-RECEIVE               ' PIC X(33).    OBSOLETE
 1767              05 VALUE ' END-RETURN                ' PIC X(33).
 1768              05 VALUE ' END-REWRITE               ' PIC X(33).
 1769              05 VALUE ' END-SEARCH                ' PIC X(33).
 1770              05 VALUE ' END-START                 ' PIC X(33).
 1771              05 VALUE ' END-STRING                ' PIC X(33).
 1772              05 VALUE ' END-SUBTRACT              ' PIC X(33).
 1773              05 VALUE ' END-UNSTRING              ' PIC X(33).
 1774              05 VALUE ' END-WRITE                 ' PIC X(33).
 1775              05 VALUE 'VENTRY                     ' PIC X(33).
 1776              05 VALUE ' ENTRY-CONVENTION          ' PIC X(33).    UNIMPLEMENTED
 1777              05 VALUE 'KENVIRONMENT               ' PIC X(33).
 1778              05 VALUE ' ENVIRONMENT-NAME          ' PIC X(33).
 1779              05 VALUE ' ENVIRONMENT-VALUE         ' PIC X(33).
 1780              05 VALUE ' EO                        ' PIC X(33).    UNIMPLEMENTED
 1781              05 VALUE ' EOL                       ' PIC X(33).
 1782              05 VALUE ' EOP                       ' PIC X(33).
 1783              05 VALUE ' EOS                       ' PIC X(33).
 1784              05 VALUE ' EQUAL                     ' PIC X(33).
 1785              05 VALUE 'KEQUALS                    ' PIC X(33).
 1786              05 VALUE ' ERASE                     ' PIC X(33).
 1787              05 VALUE ' ERROR                     ' PIC X(33).
 1788              05 VALUE ' ESCAPE                    ' PIC X(33).
 1789              05 VALUE ' ESI                       ' PIC X(33).    OBSOLETE
 1790              05 VALUE 'VEVALUATE                  ' PIC X(33).
 1791              05 VALUE ' EXCEPTION                 ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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 1793 GC1213     05 VALUE 'FEXCEPTION-FILE-N            ' PIC X(33).    UNIMPLEMENTED
 1794 GC1213     05 VALUE 'FEXCEPTION-LOCATION          ' PIC X(33).
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 1796           05 VALUE ' EXCEPTION-OBJECT             ' PIC X(33).    UNIMPLEMENTED
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 1813 GC1113     05 VALUE ' FILLER                      ' PIC X(33).
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 1832 GC1213     05 VALUE 'FFORMATTED-CURRENT-DATE       ' PIC X(33).    UNIMPLEMENTED
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 1909            05 VALUE ' LC_TIME                 ' PIC X(33).   UNIMPLEMENTED
 1910            05 VALUE ' LEADING                 ' PIC X(33).
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 1913            05 VALUE ' LEFTLINE                ' PIC X(33).
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 1950 GC1213     05 VALUE 'FMIDRANGE                ' PIC X(33).
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 1969            05 VALUE ' NATIONAL-EDITED            ' PIC X(33).
 1970 GC1213     05 VALUE 'FNATIONAL-OF                ' PIC X(33).    UNIMPLEMENTED
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 1977            05 VALUE 'VNEXT                       ' PIC X(33).
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 1981            05 VALUE ' NORMAL                     ' PIC X(33).
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 2007            05 VALUE ' OR                       ' PIC X(33).
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 2009 GC1213     05 VALUE 'FORD-MAX                 ' PIC X(33).
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 2043            05 VALUE ' PROCEED                  ' PIC X(33).
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 2140           05 VALUE ' SOURCES                   ' PIC X(33).     UNIMPLEMENTED
 2141           05 VALUE ' SPACE                     ' PIC X(33).
 2142           05 VALUE ' SPACE-FILL                ' PIC X(33).     UNIMPLEMENTED
 2143           05 VALUE ' SPACES                    ' PIC X(33).
 2144           05 VALUE ' SPECIAL-NAMES             ' PIC X(33).
 2145 GC1213    05 VALUE 'FSQRT                      ' PIC X(33).
 2146           05 VALUE ' STANDARD                  ' PIC X(33).
 2147           05 VALUE ' STANDARD-1                ' PIC X(33).
 2148           05 VALUE ' STANDARD-2                ' PIC X(33).
 2149           05 VALUE ' STANDARD-BINARY           ' PIC X(33).     UNIMPLEMENTED
 2150 GC1213    05 VALUE 'FSTANDARD-COMPARE          ' PIC X(33).     UNIMPLEMENTED
 2151           05 VALUE ' STANDARD-DECIMAL          ' PIC X(33).     UNIMPLEMENTED
 2152 GC1213    05 VALUE 'FSTANDARD-DEVIATION        ' PIC X(33).
 2153           05 VALUE 'VSTART                     ' PIC X(33).
 2154           05 VALUE ' STATEMENT                 ' PIC X(33).     UNIMPLEMENTED
 2155           05 VALUE ' STATIC                    ' PIC X(33).
 2156           05 VALUE ' STATUS                    ' PIC X(33).
 2157           05 VALUE ' STDCALL                   ' PIC X(33).
 2158           05 VALUE 'MSTDERR                    ' PIC X(33).
 2159           05 VALUE 'MSTDIN                     ' PIC X(33).
 2160           05 VALUE 'MSTDOUT                    ' PIC X(33).
 2161           05 VALUE ' STEP                      ' PIC X(33).
 2162           05 VALUE 'VSTOP                      ' PIC X(33).
```

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GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 49

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GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 50
====== ==========================================================================
 2163 GC1213    05 VALUE 'FSTORED-CHAR-LENGTH         ' PIC X(33).
 2164           05 VALUE 'VSTRING                     ' PIC X(33).
 2165           05 VALUE ' STRONG                     ' PIC X(33).      UNIMPLEMENTED
 2166           05 VALUE ' SUB-QUEUE-1                ' PIC X(33).      OBSOLETE
 2167           05 VALUE ' SUB-QUEUE-2                ' PIC X(33).      OBSOLETE
 2168           05 VALUE ' SUB-QUEUE-3                ' PIC X(33).      OBSOLETE
 2169 GC1213    05 VALUE 'FSUBSTITUTE                 ' PIC X(33).
 2170 GC1213    05 VALUE 'FSUBSTITUTE-CASE            ' PIC X(33).
 2171           05 VALUE 'VSUBTRACT                   ' PIC X(33).
 2172 GC1213    05 VALUE 'FSUM                        ' PIC X(33).
 2173           05 VALUE ' SUPER                      ' PIC X(33).      UNIMPLEMENTED
 2174           05 VALUE 'VSUPPRESS                   ' PIC X(33).
 2175           05 VALUE 'MSW0                        ' PIC X(33).
 2176           05 VALUE 'MSW1                        ' PIC X(33).
 2177           05 VALUE 'MSW10                       ' PIC X(33).
 2178           05 VALUE 'MSW11                       ' PIC X(33).
 2179           05 VALUE 'MSW12                       ' PIC X(33).
 2180           05 VALUE 'MSW13                       ' PIC X(33).
 2181           05 VALUE 'MSW14                       ' PIC X(33).
 2182           05 VALUE 'MSW15                       ' PIC X(33).
 2183           05 VALUE 'MSW2                        ' PIC X(33).
 2184           05 VALUE 'MSW3                        ' PIC X(33).
 2185           05 VALUE 'MSW4                        ' PIC X(33).
 2186           05 VALUE 'MSW5                        ' PIC X(33).
 2187           05 VALUE 'MSW6                        ' PIC X(33).
 2188           05 VALUE 'MSW7                        ' PIC X(33).
 2189           05 VALUE 'MSW8                        ' PIC X(33).
 2190           05 VALUE 'MSW9                        ' PIC X(33).
 2191           05 VALUE 'MSWITCH-0                   ' PIC X(33).
 2192           05 VALUE 'MSWITCH-1                   ' PIC X(33).
 2193           05 VALUE 'MSWITCH-10                  ' PIC X(33).
 2194           05 VALUE 'MSWITCH-11                  ' PIC X(33).
 2195           05 VALUE 'MSWITCH-12                  ' PIC X(33).
 2196           05 VALUE 'MSWITCH-13                  ' PIC X(33).
 2197           05 VALUE 'MSWITCH-14                  ' PIC X(33).
 2198           05 VALUE 'MSWITCH-15                  ' PIC X(33).
 2199           05 VALUE 'MSWITCH-2                   ' PIC X(33).
 2200           05 VALUE 'MSWITCH-3                   ' PIC X(33).
 2201           05 VALUE 'MSWITCH-4                   ' PIC X(33).
 2202           05 VALUE 'MSWITCH-5                   ' PIC X(33).
 2203           05 VALUE 'MSWITCH-6                   ' PIC X(33).
 2204           05 VALUE 'MSWITCH-7                   ' PIC X(33).
 2205           05 VALUE 'MSWITCH-8                   ' PIC X(33).
 2206           05 VALUE 'MSWITCH-9                   ' PIC X(33).
 2207           05 VALUE ' SYMBOL                     ' PIC X(33).      UNIMPLEMENTED
 2208           05 VALUE ' SYMBOLIC                   ' PIC X(33).
 2209           05 VALUE ' SYNC                       ' PIC X(33).
 2210           05 VALUE ' SYNCHRONISED               ' PIC X(33).
 2211           05 VALUE ' SYNCHRONIZED               ' PIC X(33).
 2212           05 VALUE 'MSYSERR                     ' PIC X(33).
 2213           05 VALUE 'MSYSIN                      ' PIC X(33).
 2214           05 VALUE 'MSYSIPT                     ' PIC X(33).
 2215           05 VALUE 'MSYSLIST                    ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 51
====== =========================================================================
 2216           05 VALUE 'MSYSLST                    ' PIC X(33).
 2217           05 VALUE 'MSYSOUT                    ' PIC X(33).
 2218           05 VALUE ' SYSTEM-DEFAULT            ' PIC X(33).
 2219           05 VALUE ' TABLE                     ' PIC X(33).    UNIMPLEMENTED
 2220           05 VALUE 'KTALLYING                  ' PIC X(33).
 2221 GC1213    05 VALUE 'FTAN                       ' PIC X(33).
 2222           05 VALUE ' TAPE                      ' PIC X(33).
 2223           05 VALUE ' TERMINAL                  ' PIC X(33).    OBSOLETE
 2224           05 VALUE 'VTERMINATE                 ' PIC X(33).
 2225           05 VALUE ' TEST                      ' PIC X(33).
 2226 GC1213    05 VALUE 'FTEST-DATE-YYYYMMDD        ' PIC X(33).
 2227 GC1213    05 VALUE 'FTEST-DAY-YYYYDDD          ' PIC X(33).
 2228 GC1213    05 VALUE 'FTEST-FORMATTED-DATETIME   ' PIC X(33).    UNIMPLEMENTED
 2229 GC1213    05 VALUE 'FTEST-NUMVAL               ' PIC X(33).
 2230 GC1213    05 VALUE 'FTEST-NUMVAL-C             ' PIC X(33).
 2231 GC1213    05 VALUE 'FTEST-NUMVAL-F             ' PIC X(33).
 2232           05 VALUE ' TEXT                      ' PIC X(33).    OBSOLETE
 2233           05 VALUE ' THAN                      ' PIC X(33).
 2234           05 VALUE ' THEN                      ' PIC X(33).
 2235           05 VALUE ' THROUGH                   ' PIC X(33).
 2236           05 VALUE ' THRU                      ' PIC X(33).
 2237           05 VALUE ' TIME                      ' PIC X(33).
 2238 GC0711    05 VALUE ' TIME-OUT                  ' PIC X(33).
 2239 GC0711    05 VALUE ' TIMEOUT                   ' PIC X(33).
 2240           05 VALUE ' TIMES                     ' PIC X(33).
 2241           05 VALUE 'KTO                        ' PIC X(33).
 2242           05 VALUE ' TOP                       ' PIC X(33).
 2243           05 VALUE ' TOWARD-GREATER            ' PIC X(33).
 2244           05 VALUE ' TOWARD-LESSER             ' PIC X(33).
 2245           05 VALUE ' TRAILING                  ' PIC X(33).
 2246           05 VALUE ' TRAILING-SIGN             ' PIC X(33).    UNIMPLEMENTED
 2247           05 VALUE 'VTRANSFORM                 ' PIC X(33).
 2248 GC1213    05 VALUE 'FTRIM                      ' PIC X(33).
 2249           05 VALUE ' TRUE                      ' PIC X(33).
 2250           05 VALUE ' TRUNCATION                ' PIC X(33).
 2251           05 VALUE ' TYPE                      ' PIC X(33).
 2252           05 VALUE ' TYPEDEF                   ' PIC X(33).    UNIMPLEMENTED
 2253           05 VALUE ' UCS-4                     ' PIC X(33).    UNIMPLEMENTED
 2254           05 VALUE ' UNDERLINE                 ' PIC X(33).
 2255           05 VALUE ' UNIT                      ' PIC X(33).
 2256           05 VALUE ' UNIVERSAL                 ' PIC X(33).    UNIMPLEMENTED
 2257           05 VALUE 'VUNLOCK                    ' PIC X(33).
 2258           05 VALUE ' UNSIGNED                  ' PIC X(33).
 2259           05 VALUE ' UNSIGNED-INT              ' PIC X(33).
 2260           05 VALUE ' UNSIGNED-LONG             ' PIC X(33).
 2261           05 VALUE ' UNSIGNED-SHORT            ' PIC X(33).
 2262           05 VALUE 'VUNSTRING                  ' PIC X(33).
 2263           05 VALUE ' UNTIL                     ' PIC X(33).
 2264           05 VALUE 'KUP                        ' PIC X(33).
 2265           05 VALUE ' UPDATE                    ' PIC X(33).
 2266           05 VALUE ' UPON                      ' PIC X(33).
 2267           05 VALUE ' UPPER                     ' PIC X(33).
 2268 GC1213    05 VALUE 'FUPPER-CASE                ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 52
====== =================================================================================
 2269            05 VALUE ' USAGE                      ' PIC X(33).
 2270            05 VALUE 'VUSE                        ' PIC X(33).
 2271 GC0711     05 VALUE ' USER                       ' PIC X(33).
 2272            05 VALUE ' USER-DEFAULT               ' PIC X(33).
 2273            05 VALUE 'KUSING                      ' PIC X(33).
 2274            05 VALUE ' UTF-16                     ' PIC X(33).     UNIMPLEMENTED
 2275            05 VALUE ' UTF-8                      ' PIC X(33).     UNIMPLEMENTED
 2276            05 VALUE ' VAL-STATUS                 ' PIC X(33).     UNIMPLEMENTED
 2277            05 VALUE ' VALID                      ' PIC X(33).     UNIMPLEMENTED
 2278            05 VALUE ' VALIDATE                   ' PIC X(33).     UNIMPLEMENTED
 2279            05 VALUE ' VALIDATE-STATUS            ' PIC X(33).     UNIMPLEMENTED
 2280 GC0712     05 VALUE 'AVALUE                      ' PIC X(33).
 2281            05 VALUE ' VALUES                     ' PIC X(33).
 2282 GC1213     05 VALUE 'FVARIANCE                   ' PIC X(33).
 2283            05 VALUE 'KVARYING                    ' PIC X(33).
 2284            05 VALUE ' VDISABLE                   ' PIC X(33).     UNIMPLEMENTED
 2285            05 VALUE ' WAIT                       ' PIC X(33).
 2286            05 VALUE 'VWHEN                       ' PIC X(33).
 2287 GC1213     05 VALUE 'FWHEN-COMPILED              ' PIC X(33).
 2288            05 VALUE ' WITH                       ' PIC X(33).
 2289            05 VALUE ' WORDS                      ' PIC X(33).
 2290            05 VALUE 'KWORKING-STORAGE            ' PIC X(33).
 2291            05 VALUE 'VWRITE                      ' PIC X(33).
 2292 GC1213     05 VALUE 'FYEAR-TO-YYYY               ' PIC X(33).
 2293            05 VALUE ' YYYYDDD                    ' PIC X(33).
 2294            05 VALUE ' YYYYMMDD                   ' PIC X(33).
 2295            05 VALUE ' ZERO                       ' PIC X(33).
 2296            05 VALUE ' ZERO-FILL                  ' PIC X(33).     UNIMPLEMENTED
 2297            05 VALUE ' ZEROES                     ' PIC X(33).
 2298            05 VALUE ' ZEROS                      ' PIC X(33).
 2299        01  WS-Reserved-Word-Table-TXT REDEFINES WS-Reserved-Words-TXT.
 2300 GC1113     05 WS-Reserved-Word-TXT       OCCURS 754 TIMES
 2301                                          ASCENDING KEY
 2302                                              WS-RW-Word-TXT
 2303                                          INDEXED WS-RW-IDX.
 2304            10 WS-RW-Type-CD           PIC X(1).
 2305            10 WS-RW-Word-TXT          PIC X(32).
 2306
 2307        01  WS-Runtime-Switches.
 2308 GC0710     05 WS-RS-Duplicate-CHR            PIC X(1).
 2309            05 WS-RS-In-Which-Pgm-CHR         PIC X(1).
 2310               88 WS-RS-In-Main-Module-BOOL     VALUE 'M'.
 2311               88 WS-RS-In-Copybook-BOOL        VALUE 'C'.
 2312            05 WS-RS-Last-Token-Ended-Sent-CHR PIC X(1).
 2313            05 WS-RS-Processing-PICTURE-CHR   PIC X(1).
 2314            05 WS-RS-Token-Ended-Sentence-CHR PIC X(1).
 2315 GC0710     05 WS-RS-Verb-Has-Been-Found-CHR  PIC X(1).
 2316
 2317        01  WS-Saved-Section-TXT           PIC X(15).
 2318
 2319 GC1213 01  WS-Src-Dashes-TXT.
 2320 GC0712     05 VALUE '======'               PIC X(7).
 2321 GC0712     05 VALUE ALL '='                PIC X(128).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 53
====== =========================================================================================
 2322
 2323        01  WS-Src-Detail-Line-TXT.
 2324            05 WS-SDL-Line-NUM                    PIC ZZZZZ9.
 2325            05 FILLER                             PIC X(1).
 2326            05 WS-SDL-Statement-TXT               PIC X(256).
 2327
 2328 GC1213 01  WS-Src-Hold-TXT                       PIC X(256).
 2329
 2330        01  WS-Src-Line-NUM                       PIC 9(6).
 2331
 2332 GC1213 01  WS-Src-Lines-NUM                      USAGE BINARY-LONG.
 2333
 2334        01  WS-Src-SUB                            USAGE BINARY-LONG.
 2335
 2336        01  WS-Tally-QTY                          USAGE BINARY-LONG.
 2337
 2338        01  WS-Temp-10-Chars-TXT                  PIC X(10).
 2339
 2340        01  WS-Temp-32-Chars-1-TXT                PIC X(32).
 2341
 2342 GC0711 01  WS-Temp-32-Chars-2-TXT                PIC X(32).
 2343
 2344 GC0711 01  WS-Temp-32-Chars-3-TXT                PIC X(32).
 2345
 2346 GC0712 01  WS-Temp-65-Chars-TXT                  PIC X(65).
 2347
 2348        01  WS-Temp-256-Chars-TXT                 PIC X(256).
 2349
 2350        01  WS-Today-DT                           PIC 9(8).
 2351
 2352        01  WS-Token-Curr-TXT                     PIC X(32).
 2353
 2354        01  WS-Token-Curr-Uc-TXT                  PIC X(32).
 2355
 2356        01  WS-Token-Prev-TXT                     PIC X(32).
 2357
 2358        01  WS-Token-Search-TXT                   PIC X(32).
 2359
 2360        01  WS-Token-Type-CD                      PIC X(1).
 2361 GC0712     88 WS-TT-Token-Is-Argtype-BOOL        VALUE 'A'.
 2362            88 WS-TT-Token-Is-EOF-BOOL            VALUE HIGH-VALUES.
 2363 GC1213     88 WS-TT-Token-Is-Function-BOOL       VALUE 'F'.
 2364            88 WS-TT-Token-Is-Identifier-BOOL     VALUE 'I'.
 2365 GC0712     88 WS-TT-Token-Is-Keyword-BOOL        VALUE 'K', 'V', 'A'.
 2366            88 WS-TT-Token-Is-Lit-Alpha-BOOL      VALUE 'L'.
 2367            88 WS-TT-Token-Is-Lit-Number-BOOL     VALUE 'N'.
 2368            88 WS-TT-Token-Is-Verb-BOOL           VALUE 'V'.
 2369 GC1213     88 WS-TT-Token-Is-Reserved-Wd-BOOL    VALUE ' ', 'F'.
 2370
 2371        01  WS-Usernames-QTY                      USAGE BINARY-LONG.
 2372
 2373        01  WS-Version-TXT                        PIC X(23).
 2374
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 54
======= ========================================================================
 2375        01  WS-Xref-Detail-Line-TXT.
 2376            05 WS-XDL-Prog-ID-TXT              PIC X(15).
 2377            05 FILLER                          PIC X(1).
 2378            05 WS-XDL-Token-TXT                PIC X(32).
 2379            05 FILLER                          PIC X(1).
 2380            05 WS-XDL-Def-Line-NUM             PIC ZZZZZ9.
 2381            05 FILLER                          PIC X(1).
 2382            05 WS-XDL-Section-TXT              PIC X(15).
 2383            05 FILLER                          PIC X(1).
 2384            05 WS-XDL-Reference-TXT            OCCURS 8 TIMES.
 2385               10 WS-XDL-Ref-Line-NUM          PIC ZZZZZ9.
 2386               10 WS-XDL-Ref-Flag-CHR          PIC X(1).
 2387               10 FILLER                       PIC X(1).
 2388
 2389 GC1213 01  WS-Xref-Lines-Per-Rec-NUM         PIC 9(1).
 2390
 2391        LINKAGE SECTION.
 2392 GC0712 01  L-Listing-Fn-TXT                  PIC X(256).
 2393
 2394        01  L-Src-Fn-TXT                      PIC X(256).
 2395
 2396 GC0712 01  L-OS-Type-CD                      PIC 9(1).
 2397
 2398 GC1213 01  L-LPP-NUM                         USAGE BINARY-LONG.
 2399
 2400 GC1213 01  L-LPP-Port-NUM                    USAGE BINARY-LONG.
 2401
 2402 GC1213 01  L-Listing-CD                      PIC 9(1).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 55
======  ==================================================================================

 2404 GC0712 PROCEDURE DIVISION USING L-Listing-Fn-TXT
 2405 GC0712                          L-Src-Fn-TXT
 2406 GC0712                          L-OS-Type-CD
 2407 GC1213                          L-LPP-NUM
 2408 GC1213                          L-LPP-Port-NUM
 2409 GC1213                          L-Listing-CD.
 2410        000-Main SECTION.
 2411            PERFORM 100-Initialization
 2412 GC0712     OPEN OUTPUT F-Listing-FILE
 2413 GC0712     PERFORM 500-Produce-Source-Listing
 2414 GC0712     SORT F-Sort-Work-FILE
 2415 GC0712         ASCENDING KEY    F-SW-Prog-ID-TXT
 2416 GC0712                          F-SW-Token-Uc-TXT
 2417 GC0712                          F-SW-Ref-Line-NUM
 2418 GC0712         INPUT PROCEDURE  300-Tokenize-Source
 2419 GC0712         OUTPUT PROCEDURE 400-Produce-Xref-Listing
 2420 GC0712     CLOSE F-Listing-FILE
 2421            GOBACK
 2422            .
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                     Page: 56
====== =========================================================================

  2424        *>***************************************************************
  2425        *> Perform all program-wide initialization operations         **
  2426        *>***************************************************************
  2427         100-Initialization SECTION.
  2428 GC1213     MOVE 0 TO WS-Page-NUM
  2429 GC1213     MOVE 'N' TO WS-Suppress-FF-CHR
  2430 GC1213     MOVE SPACES TO WS-Copyright-TXT
  2431 GC1213     STRING 'GCic for '                    DELIMITED SIZE
  2432 GC1213            WS-OS-Type-TXT(L-OS-Type-CD) DELIMITED SPACE
  2433 GC1213            ' Copyright (C) 2009-2018, Gary L. Cutler, GPL'
  2434 GC1213                                          DELIMITED SIZE
  2435 GC1213            INTO WS-Copyright-TXT
  2436 GC1213     MOVE 'GNUCOBOL 3.0 24DEC2017' TO WS-Version-TXT
  2437            MOVE TRIM(L-Src-Fn-TXT,Leading) TO L-Src-Fn-TXT
  2438 GC1010     PERFORM VARYING WS-I-SUB FROM LENGTH(L-Src-Fn-TXT) BY -1 *> Locate last direct
        ory delimiter character so that the filename can be extracted
  2439 GC1010             UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/' OR '\'
  2440 GC1010                   OR WS-I-SUB = 0
  2441 GC1010     END-PERFORM
  2442 GC1010     IF WS-I-SUB = 0
  2443 GC1010        MOVE UPPER-CASE(L-Src-Fn-TXT) TO WS-Main-Module-Name-TXT *> No directory d
        elimiter, whole thing is filename
  2444 GC1010     ELSE
  2445 GC1010        ADD 1 TO WS-I-SUB
  2446 GC1010        MOVE UPPER-CASE(L-Src-Fn-TXT(WS-I-SUB:))
  2447 GC1010          TO WS-Main-Module-Name-TXT *> Extract filename
  2448 GC1010     END-IF
  2449 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  2450 GC1213        MOVE 8 TO WS-Xref-Lines-Per-Rec-NUM
  2451 GC1213        ACCEPT WS-Lines-Per-Page-Env-TXT
  2452 GC1213           FROM ENVIRONMENT 'GCXREF_LINES'
  2453 GC1213     ELSE *> PORTRAIT
  2454 GC1213        MOVE 3 TO WS-Xref-Lines-Per-Rec-NUM
  2455 GC1213        ACCEPT WS-Lines-Per-Page-Env-TXT
  2456 GC1213           FROM ENVIRONMENT 'GCXREF_LINES_PORT'
  2457 GC1213     END-IF
  2458            INSPECT L-Src-Fn-TXT REPLACING ALL '\' BY '/'
  2459            MOVE L-Src-Fn-TXT TO WS-Program-Path-TXT
  2460            CALL 'C$JUSTIFY' USING WS-Program-Path-TXT, 'Right'
  2461            MOVE LENGTH(TRIM(L-Src-Fn-TXT,Trailing)) TO WS-I-SUB
  2462            MOVE 0 TO WS-J-SUB
  2463            PERFORM UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/'
  2464                    OR WS-I-SUB = 0
  2465               SUBTRACT 1 FROM WS-I-SUB
  2466               ADD     1 TO   WS-J-SUB
  2467            END-PERFORM
  2468            UNSTRING L-Src-Fn-TXT((WS-I-SUB + 1):WS-J-SUB)
  2469               DELIMITED BY '.'
  2470               INTO WS-Filename-TXT
  2471                    WS-Dummy-TXT
  2472 GC1010     STRING
  2473 GC1010         TRIM(WS-Filename-TXT,Trailing)
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                      Page: 57
====== ========================================================================
  2474 GC1010            '.i'
  2475 GC1010              DELIMITED SIZE
  2476 GC1010              INTO WS-Expanded-Src-Fn-TXT
  2477 GC1010      CALL 'CBL_CHECK_FILE_EXIST' USING WS-Expanded-Src-Fn-TXT
  2478 GC1010                                   WS-Temp-256-Chars-TXT
  2479 GC1010      IF RETURN-CODE NOT = 0
  2480 GC1010          GOBACK
  2481 GC1010      END-IF
  2482             IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
  2483                 MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
  2484                   TO WS-Lines-Per-Page-NUM
  2485             ELSE
  2486 GC1213          IF L-LISTING-CD = 1 *> LANDSCAPE
  2487 GC1213              MOVE L-LPP-NUM TO WS-Lines-Per-Page-NUM
  2488 GC1213          ELSE              *> PORTRAIT
  2489 GC1213              MOVE L-LPP-Port-NUM TO WS-Lines-Per-Page-NUM
  2490 GC1213          END-IF
  2491             END-IF
  2492 GC1213      SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *> FOR PAGE FOOTER
  2493             ACCEPT WS-Today-DT FROM DATE YYYYMMDD
  2494 GC1213      MOVE WS-Today-DT TO WS-Formatted-DT
  2495             MOVE '????????????...' TO WS-Curr-Prog-ID-TXT
  2496             MOVE SPACES          TO WS-Curr-Verb-TXT
  2497                                     WS-Held-Reference-TXT
  2498             .
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 58
======  =================================================================================

  2500        300-Tokenize-Source SECTION.
  2501            OPEN INPUT F-Expanded-Src-FILE
  2502            MOVE SPACES TO F-Expanded-Src-REC
  2503            MOVE 256 TO WS-Src-SUB
  2504            MOVE 0 TO WS-Usernames-QTY
  2505                       WS-Curr-Line-NUM
  2506            MOVE '?' TO WS-Curr-Division-TXT
  2507 GC0710     MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
  2508            PERFORM FOREVER
  2509                PERFORM 310-Get-Token
  2510                IF WS-TT-Token-Is-EOF-BOOL
  2511                    EXIT PERFORM
  2512                END-IF
  2513                MOVE UPPER-CASE(WS-Token-Curr-TXT)
  2514                  TO WS-Token-Curr-Uc-TXT
  2515 GC1010         IF WS-TT-Token-Is-Keyword-BOOL
  2516 GC1010         OR WS-TT-Token-Is-Reserved-Wd-BOOL
  2517 GC1010             MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Curr-TXT
  2518 GC1010         END-IF
  2519                IF WS-TT-Token-Is-Verb-BOOL
  2520                    MOVE WS-Token-Curr-Uc-TXT TO WS-Curr-Verb-TXT
  2521                                                 WS-Token-Prev-TXT
  2522                    IF WS-Held-Reference-TXT NOT = SPACES
  2523                        MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
  2524                        MOVE SPACES        TO WS-Held-Reference-TXT
  2525                        RELEASE F-Sort-Work-REC
  2526                    END-IF
  2527                END-IF
  2528                EVALUATE TRUE
  2529                WHEN WS-CD-In-IDENT-DIV-BOOL
  2530                    PERFORM 320-IDENTIFICATION-DIVISION
  2531                WHEN WS-CD-In-ENV-DIV-BOOL
  2532                    PERFORM 330-ENVIRONMENT-DIVISION
  2533                WHEN WS-CD-In-DATA-DIV-BOOL
  2534                    PERFORM 340-DATA-DIVISION
  2535                WHEN WS-CD-In-PROC-DIV-BOOL
  2536                    PERFORM 350-PROCEDURE-DIVISION
  2537                END-EVALUATE
  2538                IF WS-TT-Token-Is-Keyword-BOOL
  2539                    MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Prev-TXT
  2540                END-IF
  2541                IF WS-RS-Token-Ended-Sentence-CHR = 'Y'
  2542                AND WS-Curr-Division-TXT NOT = 'I'
  2543                    MOVE SPACES TO WS-Token-Prev-TXT
  2544                                   WS-Curr-Verb-TXT
  2545                END-IF
  2546
  2547            END-PERFORM
  2548            CLOSE F-Expanded-Src-FILE
  2549                .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 59
====== =========================================================================

 2551        310-Get-Token SECTION.
 2552       *>-- Position to 1st non-blank character
 2553            MOVE WS-RS-Token-Ended-Sentence-CHR
 2554              TO WS-RS-Last-Token-Ended-Sent-CHR
 2555            MOVE 'N' TO WS-RS-Token-Ended-Sentence-CHR
 2556            PERFORM UNTIL F-Expanded-Src-REC(WS-Src-SUB : 1) NOT = SPACE
 2557                IF WS-Src-SUB > 255
 2558                    READ F-Expanded-Src-FILE AT END
 2559                        IF WS-Held-Reference-TXT NOT = SPACES
 2560                            MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 2561                            MOVE SPACES        TO WS-Held-Reference-TXT
 2562                            RELEASE F-Sort-Work-REC
 2563                        END-IF
 2564                        SET WS-TT-Token-Is-EOF-BOOL TO TRUE
 2565                        MOVE 0 TO WS-Curr-Line-NUM
 2566                        EXIT SECTION
 2567                    END-READ
 2568 GC0712             IF F-ES-1-7-TXT NOT = '#DEFLIT'
 2569 GC0712                 IF F-ES-1-CHR = '#'
 2570 GC0712                     PERFORM 311-Control-Record
 2571 GC0712                 ELSE
 2572 GC0712                     PERFORM 312-Expanded-Src-Record
 2573 GC0712                 END-IF
 2574 GC0712             END-IF
 2575                ELSE
 2576                    ADD 1 TO WS-Src-SUB
 2577                END-IF
 2578            END-PERFORM
 2579       *>-- Extract token string
 2580            MOVE F-Expanded-Src-REC(WS-Src-SUB : 1)
 2581              TO WS-Curr-CHR
 2582            MOVE F-Expanded-Src-REC(WS-Src-SUB + 1: 1)
 2583              TO WS-Next-CHR
 2584            IF WS-Curr-CHR = '.'
 2585                ADD 1 TO WS-Src-SUB
 2586                MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
 2587                MOVE SPACE TO WS-Token-Type-CD
 2588                MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2589                EXIT SECTION
 2590            END-IF
 2591            IF WS-Curr-Char-Is-Punct-BOOL
 2592            AND WS-Curr-CHR = '='
 2593            AND WS-Curr-Division-TXT = 'P'
 2594                ADD 1 TO WS-Src-SUB
 2595                MOVE 'EQUALS' TO WS-Token-Curr-TXT
 2596                MOVE 'K'      TO WS-Token-Type-CD
 2597                EXIT SECTION
 2598            END-IF
 2599            IF WS-Curr-Char-Is-Punct-BOOL *> So subscripts don't get flagged w/ '*'
 2600            AND WS-Curr-CHR = '('
 2601            AND WS-Curr-Division-TXT = 'P'
 2602                MOVE SPACES TO WS-Token-Prev-TXT
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 60
====== ==========================================================================================
  2603           END-IF
  2604           IF WS-Curr-Char-Is-Punct-BOOL
  2605               ADD 1 TO WS-Src-SUB
  2606               MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
  2607               MOVE SPACE TO WS-Token-Type-CD
  2608               EXIT SECTION
  2609           END-IF
  2610           IF WS-Curr-Char-Is-Quote-BOOL
  2611               ADD 1 TO WS-Src-SUB
  2612               UNSTRING F-Expanded-Src-REC
  2613                   DELIMITED BY WS-Curr-CHR
  2614                   INTO WS-Token-Curr-TXT
  2615                   WITH POINTER WS-Src-SUB
  2616               IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
  2617                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
  2618                   ADD 1 TO WS-Src-SUB
  2619               END-IF
  2620               SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
  2621               EXIT SECTION
  2622           END-IF
  2623           IF WS-Curr-Char-Is-X-BOOL AND WS-Next-Char-Is-Quote-BOOL
  2624               ADD 2 TO WS-Src-SUB
  2625               UNSTRING F-Expanded-Src-REC
  2626                   DELIMITED BY WS-Next-CHR
  2627                   INTO WS-Token-Curr-TXT
  2628                   WITH POINTER WS-Src-SUB
  2629               IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
  2630                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
  2631                   ADD 1 TO WS-Src-SUB
  2632               END-IF
  2633               SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
  2634               EXIT SECTION
  2635           END-IF
  2636           IF WS-Curr-Char-Is-Z-BOOL AND WS-Next-Char-Is-Quote-BOOL
  2637               ADD 2 TO WS-Src-SUB
  2638               UNSTRING F-Expanded-Src-REC
  2639                   DELIMITED BY WS-Next-CHR
  2640                   INTO WS-Token-Curr-TXT
  2641                   WITH POINTER WS-Src-SUB
  2642               IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
  2643                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
  2644                   ADD 1 TO WS-Src-SUB
  2645               END-IF
  2646               SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
  2647               EXIT SECTION
  2648           END-IF
  2649           IF WS-RS-Processing-PICTURE-CHR = 'Y'
  2650               UNSTRING F-Expanded-Src-REC
  2651                   DELIMITED BY '. ' OR ' '
  2652                   INTO WS-Token-Curr-TXT
  2653                   DELIMITER IN WS-Delim-TXT
  2654                   WITH POINTER WS-Src-SUB
  2655               IF WS-Delim-TXT = '. '
```

===========================================================================================
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```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 61
====== ==========================================================================
 2656                      MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2657                      ADD 1 TO WS-Src-SUB
 2658                  END-IF
 2659                  IF UPPER-CASE(WS-Token-Curr-TXT) = 'IS'
 2660                      MOVE SPACE TO WS-Token-Type-CD
 2661                      EXIT SECTION
 2662                  ELSE
 2663                      MOVE 'N' TO WS-RS-Processing-PICTURE-CHR
 2664                      MOVE SPACE TO WS-Token-Type-CD
 2665                      EXIT SECTION
 2666                  END-IF
 2667              END-IF
 2668              UNSTRING F-Expanded-Src-REC
 2669                  DELIMITED BY '. ' OR ' ' OR '=' OR '(' OR ')' OR '*'
 2670                                     OR '/' OR '&' OR ';' OR ',' OR '<'
 2671                                     OR '>' OR ':'
 2672                  INTO WS-Token-Curr-TXT
 2673                  DELIMITER IN WS-Delim-TXT
 2674                  WITH POINTER WS-Src-SUB
 2675              IF WS-Delim-TXT = '. '
 2676                  MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2677              END-IF
 2678              IF WS-Delim-TXT NOT = '. ' AND ' '
 2679                  SUBTRACT 1 FROM WS-Src-SUB
 2680              END-IF
 2681       *>-- Classify Token
 2682              MOVE UPPER-CASE(WS-Token-Curr-TXT) TO WS-Token-Search-TXT
 2683              IF WS-Token-Search-TXT = 'EQUAL' OR 'EQUALS'
 2684                  MOVE 'EQUALS' TO WS-Token-Curr-TXT
 2685                  MOVE 'K'      TO WS-Token-Type-CD
 2686                  EXIT SECTION
 2687              END-IF
 2688              SEARCH ALL WS-Reserved-Word-TXT
 2689                  WHEN WS-RW-Word-TXT (WS-RW-IDX) = WS-Token-Search-TXT
 2690                      MOVE WS-RW-Type-CD (WS-RW-IDX) TO WS-Token-Type-CD
 2691 GC0710               IF WS-TT-Token-Is-Verb-BOOL
 2692 GC0710                   MOVE 'Y' TO WS-RS-Verb-Has-Been-Found-CHR
 2693 GC0710               END-IF
 2694                      EXIT SECTION
 2695              END-SEARCH
 2696       *>-- Not a reserved word, must be a user name
 2697              SET WS-TT-Token-Is-Identifier-BOOL TO TRUE
 2698              PERFORM 313-Check-For-Numeric-Token
 2699              IF WS-TT-Token-Is-Lit-Number-BOOL
 2700                  IF  (WS-RS-Last-Token-Ended-Sent-CHR = 'Y')
 2701                  AND (WS-Curr-Division-TXT = 'D')
 2702                      MOVE 'LEVEL #' TO WS-Token-Curr-TXT
 2703                      MOVE 'K'       TO WS-Token-Type-CD
 2704                      EXIT SECTION
 2705                  ELSE
 2706                      EXIT SECTION
 2707                  END-IF
 2708              END-IF
```

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GNUCOBOL 3.0 24DEC2017   Source Listing                              2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 62
====== =========================================================================
  2709            .
```

```
 2711        311-Control-Record SECTION.
 2712            UNSTRING F-ES-2-256-TXT-256
 2713                DELIMITED BY '"'
 2714                INTO WS-Temp-10-Chars-TXT
 2715                    WS-Temp-256-Chars-TXT
 2716                    WS-Dummy-TXT
 2717            INSPECT WS-Temp-10-Chars-TXT REPLACING ALL '"' BY SPACE
 2718 GC0712    IF WS-Temp-10-Chars-TXT(1:4) = 'line'
 2719 GC0712        MOVE SPACES TO WS-Temp-10-Chars-TXT(1:4)
 2720 GC0712    END-IF
 2721            COMPUTE WS-I-SUB = NUMVAL(WS-Temp-10-Chars-TXT) - 1
 2722 GC1010    IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
 2723 GC1010       TRIM(WS-Main-Module-Name-TXT)
 2724               MOVE WS-I-SUB TO WS-Curr-Line-NUM
 2725               SET WS-RS-In-Main-Module-BOOL TO TRUE
 2726               IF WS-Saved-Section-TXT NOT = SPACES
 2727                   MOVE WS-Saved-Section-TXT TO WS-Curr-Section-TXT
 2728               END-IF
 2729            ELSE
 2730               SET WS-RS-In-Copybook-BOOL TO TRUE
 2731               IF WS-Saved-Section-TXT = SPACES
 2732                   MOVE WS-Curr-Section-TXT TO WS-Saved-Section-TXT
 2733               END-IF
 2734               MOVE LENGTH(TRIM(WS-Temp-256-Chars-TXT,Trailing))
 2735                 TO WS-I-SUB
 2736               MOVE 0 TO WS-J-SUB
 2737               PERFORM UNTIL WS-Temp-256-Chars-TXT(WS-I-SUB:1) = '/'
 2738                       OR WS-I-SUB = 0
 2739                   SUBTRACT 1 FROM WS-I-SUB
 2740                   ADD     1 TO   WS-J-SUB
 2741               END-PERFORM
 2742               UNSTRING WS-Temp-256-Chars-TXT((WS-I-SUB + 1):WS-J-SUB)
 2743                   DELIMITED BY '.'
 2744                   INTO WS-Filename-TXT
 2745                       WS-Dummy-TXT
 2746               MOVE '['      TO WS-CS-1-CHR
 2747               MOVE WS-Filename-TXT TO WS-CS-2-14-TXT
 2748               IF WS-CS-11-14-TXT NOT = SPACES
 2749                   MOVE '...' TO WS-CS-11-14-TXT
 2750               END-IF
 2751               MOVE ']'      TO WS-CS-15-CHR
 2752            END-IF
 2753            MOVE SPACES TO F-Expanded-Src-REC *> Force another READ
 2754            MOVE 256    TO WS-Src-SUB
 2755            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 64
====== =========================================================================

 2757        312-Expanded-Src-Record SECTION.
 2758 GC0314     IF F-Expanded-Src-REC(1:1) = SPACE
 2759 GC0314        MOVE 2 TO WS-Src-SUB
 2760 GC0314     ELSE
 2761 GC0314        MOVE 1 TO WS-Src-SUB
 2762 GC0314     END-IF
 2763            IF WS-RS-In-Main-Module-BOOL
 2764                ADD 1 To WS-Curr-Line-NUM
 2765            END-IF
 2766            .
```

=============================================================================================
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```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 65
====== =========================================================================

 2768        313-Check-For-Numeric-Token SECTION.
 2769            MOVE WS-Token-Curr-TXT TO WS-Temp-32-Chars-1-TXT
 2770            INSPECT WS-Temp-32-Chars-1-TXT
 2771 GC0711        CONVERTING '0123456789' TO SPACES
 2772 GC0711    IF WS-Temp-32-Chars-1-TXT = SPACES                   *> Simple Unsigned Int
      eger
 2773                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2774                EXIT SECTION
 2775            END-IF
 2776 GC0711    MOVE SPACES TO WS-Temp-32-Chars-2-TXT
 2777 GC0711                  WS-Temp-32-Chars-3-TXT
 2778 GC0711                  WS-Dummy-TXT
 2779 GC0711    UNSTRING WS-Temp-32-Chars-1-TXT
 2780 GC0711        DELIMITED BY 'e' OR 'E'
 2781 GC0711        INTO WS-Temp-32-Chars-2-TXT
 2782 GC0711             WS-Temp-32-Chars-3-TXT
 2783 GC0711             WS-Dummy-TXT
 2784 GC0711    IF WS-Dummy-TXT NOT = SPACES               *> More than one 'E' - Not Num
      eric
 2785 GC0711        EXIT SECTION
 2786 GC0711    END-IF
 2787 GC0711    IF WS-Temp-32-Chars-2-TXT(1:1) = '+' OR '-'
 2788 GC0711        MOVE SPACE TO WS-Temp-32-Chars-2-TXT(1:1)
 2789 GC0711    END-IF
 2790 GC0711    IF WS-Temp-32-Chars-3-TXT(1:1) = '+' OR '-'
 2791 GC0711        MOVE SPACE TO WS-Temp-32-Chars-3-TXT(1:1)
 2792 GC0711    END-IF
 2793            MOVE 0 TO WS-Tally-QTY
 2794 GC0711    INSPECT WS-Temp-32-Chars-2-TXT
 2795                TALLYING WS-Tally-QTY FOR ALL '.'
 2796            IF WS-Tally-QTY = 1
 2797 GC0711        INSPECT WS-Temp-32-Chars-2-TXT REPLACING ALL '.' BY SPACE
 2798            END-IF
 2799 GC0711    INSPECT WS-Temp-32-Chars-3-TXT
 2800 GC0711        TALLYING WS-Tally-QTY FOR ALL '.'
 2801 GC0711    IF WS-Tally-QTY = 1
 2802 GC0711        INSPECT WS-Temp-32-Chars-3-TXT REPLACING ALL '.' BY SPACE
 2803 GC0711    END-IF
 2804 GC0711    IF WS-Temp-32-Chars-2-TXT = SPACES AND WS-Temp-32-Chars-3-TXT = SPACES
 2805                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2806                EXIT SECTION
 2807            END-IF
 2808            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                          2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                 Page: 66
======  ==========================================================================================

 2810         320-IDENTIFICATION-DIVISION SECTION.
 2811 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
 2812 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
 2813 GC0712     END-IF
 2814 GC0710     MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
 2815            IF WS-TT-Token-Is-Keyword-BOOL
 2816            AND WS-Token-Curr-TXT = 'DIVISION'
 2817                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
 2818                EXIT SECTION
 2819            END-IF
 2820 GC0712     IF WS-Token-Prev-TXT = 'PROGRAM-ID' OR 'FUNCTION-ID'
 2821                MOVE SPACES TO WS-Token-Prev-TXT
 2822                MOVE WS-Token-Curr-TXT TO WS-Curr-Prog-ID-TXT
 2823 GC0712         IF WS-CPI-16-CHR NOT = SPACES
 2824                    MOVE '...' TO WS-CPI-13-15-TXT
 2825                END-IF
 2826                EXIT SECTION
 2827            END-IF
 2828            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                    Page: 67
====== ========================================================================

  2830        330-ENVIRONMENT-DIVISION SECTION.
  2831 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
  2832 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
  2833 GC0712     END-IF
  2834            IF WS-TT-Token-Is-Keyword-BOOL
  2835            AND WS-Token-Curr-TXT = 'DIVISION'
  2836                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2837                EXIT SECTION
  2838            END-IF
  2839            IF WS-TT-Token-Is-Keyword-BOOL
  2840            AND WS-Token-Curr-TXT = 'SECTION'
  2841                MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
  2842                EXIT SECTION
  2843            END-IF
  2844            IF WS-TT-Token-Is-Identifier-BOOL
  2845 GC0712         IF WS-Token-Prev-TXT = 'FUNCTION'
  2846 GC0712             PERFORM 360-Release-Def
  2847 GC0712         ELSE
  2848 GC0712             PERFORM 361-Release-Ref
  2849 GC0712         END-IF
  2850            END-IF
  2851 GC1213     IF WS-TT-Token-Is-Function-BOOL
  2852 GC1213         PERFORM 361-Release-Ref
  2853 GC1213     END-IF
  2854            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 68
======  ===============================================================================

 2856         340-DATA-DIVISION SECTION.
 2857 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
 2858 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
 2859 GC0712     END-IF
 2860            IF WS-TT-Token-Is-Keyword-BOOL
 2861            AND WS-Token-Curr-TXT = 'DIVISION'
 2862                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
 2863                EXIT SECTION
 2864            END-IF
 2865            IF WS-TT-Token-Is-Keyword-BOOL
 2866            AND WS-Token-Curr-TXT = 'SECTION'
 2867                MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
 2868                EXIT SECTION
 2869            END-IF
 2870            IF  (WS-Token-Curr-TXT = 'PIC' OR 'PICTURE')
 2871            AND (WS-TT-Token-Is-Keyword-BOOL)
 2872                MOVE 'Y' TO WS-RS-Processing-PICTURE-CHR
 2873                EXIT SECTION
 2874            END-IF
 2875 GC0710     IF WS-TT-Token-Is-Reserved-Wd-BOOL
 2876 GC0710     AND WS-Token-Prev-TXT = 'LEVEL #'
 2877 GC0710         MOVE SPACES TO WS-Token-Prev-TXT
 2878 GC0710         EXIT SECTION
 2879 GC0710     END-IF
 2880            IF WS-TT-Token-Is-Identifier-BOOL
 2881                EVALUATE WS-Token-Prev-TXT
 2882                WHEN 'FD'
 2883                    PERFORM 360-Release-Def
 2884                    MOVE SPACES TO WS-Token-Prev-TXT
 2885 GC1213         WHEN 'RD'
 2886 GC1213             PERFORM 360-Release-Def
 2887 GC1213             MOVE SPACES TO WS-Token-Prev-TXT
 2888                WHEN 'SD'
 2889                    PERFORM 360-Release-Def
 2890                    MOVE SPACES TO WS-Token-Prev-TXT
 2891                WHEN 'LEVEL #'
 2892                    PERFORM 360-Release-Def
 2893                    MOVE SPACES TO WS-Token-Prev-TXT
 2894                WHEN 'INDEXED'
 2895                    PERFORM 360-Release-Def
 2896                    MOVE SPACES TO WS-Token-Prev-TXT
 2897                WHEN 'USING'
 2898                    PERFORM 362-Release-Upd
 2899                    MOVE SPACES TO WS-Token-Prev-TXT
 2900                WHEN 'INTO'
 2901                    PERFORM 362-Release-Upd
 2902                    MOVE SPACES TO WS-Token-Prev-TXT
 2903                WHEN OTHER
 2904 GC1213             IF WS-Token-Curr-TXT NOT = 'SUM'
 2905 GC1213                 PERFORM 361-Release-Ref
 2906 GC1213             END-IF
 2907                END-EVALUATE
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 69
====== =========================================================================================
  2908              EXIT SECTION
  2909          END-IF
  2910              .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 70
======  ================================================================================

  2912        350-PROCEDURE-DIVISION SECTION.
  2913            IF WS-Curr-Section-TXT NOT = 'PROCEDURE'
  2914                MOVE 'PROCEDURE' TO WS-Curr-Section-TXT
  2915            END-IF
  2916 GC0710     IF WS-Token-Curr-Uc-TXT = 'PROGRAM'
  2917 GC0710     AND WS-Token-Prev-TXT = 'END'
  2918 GC0710         MOVE '?' TO WS-Curr-Division-TXT
  2919 GC0710         EXIT SECTION
  2920 GC0710     END-IF
  2921            IF WS-TT-Token-Is-Keyword-BOOL
  2922            AND WS-Token-Curr-TXT = 'DIVISION'
  2923                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2924                EXIT SECTION
  2925            END-IF
  2926 GC0313     IF WS-TT-Token-Is-Identifier-BOOL
  2927 GC0313     AND WS-Token-Prev-TXT = SPACES
  2928 GC0313     AND WS-Curr-Verb-TXT = SPACES
  2929 GC0313*> ----- Definition of a Paragraph or Section
  2930 GC0313         PERFORM 360-Release-Def
  2931 GC0313         MOVE SPACES TO WS-Token-Prev-TXT
  2932 GC0313         EXIT SECTION
  2933 GC0313     END-IF
  2934            IF NOT WS-TT-Token-Is-Identifier-BOOL
  2935                EXIT SECTION
  2936            END-IF
  2937            EVALUATE WS-Curr-Verb-TXT
  2938            WHEN 'ACCEPT'
  2939                PERFORM 351-ACCEPT
  2940            WHEN 'ADD'
  2941                PERFORM 351-ADD
  2942            WHEN 'ALLOCATE'
  2943                PERFORM 351-ALLOCATE
  2944            WHEN 'CALL'
  2945                PERFORM 351-CALL
  2946            WHEN 'COMPUTE'
  2947                PERFORM 351-COMPUTE
  2948            WHEN 'DIVIDE'
  2949                PERFORM 351-DIVIDE
  2950            WHEN 'FREE'
  2951                PERFORM 351-FREE
  2952 GC1213     WHEN 'GENERATE'
  2953 GC1213         PERFORM 351-GENERATE
  2954            WHEN 'INITIALIZE'
  2955                PERFORM 351-INITIALIZE
  2956 GC1213     WHEN 'INITIATE'
  2957 GC1213         PERFORM 351-GENERATE
  2958            WHEN 'INSPECT'
  2959                PERFORM 351-INSPECT
  2960            WHEN 'MOVE'
  2961                PERFORM 351-MOVE
  2962            WHEN 'MULTIPLY'
  2963                PERFORM 351-MULTIPLY
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 71
====== =========================================================================================
  2964           WHEN 'PERFORM'
  2965               PERFORM 351-PERFORM
  2966           WHEN 'SET'
  2967               PERFORM 351-SET
  2968           WHEN 'STRING'
  2969               PERFORM 351-STRING
  2970           WHEN 'SUBTRACT'
  2971               PERFORM 351-SUBTRACT
  2972 GC1213    WHEN 'TERMINATE'
  2973 GC1213        PERFORM 351-GENERATE
  2974           WHEN 'TRANSFORM'
  2975               PERFORM 351-TRANSFORM
  2976           WHEN 'UNSTRING'
  2977               PERFORM 351-UNSTRING
  2978           WHEN OTHER
  2979               PERFORM 361-Release-Ref
  2980           END-EVALUATE
  2981           .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 72
======  ===============================================================================

  2983        351-ACCEPT SECTION.
  2984            EVALUATE WS-Token-Prev-TXT
  2985            WHEN 'ACCEPT'
  2986                PERFORM 362-Release-Upd
  2987                MOVE SPACES TO WS-Token-Prev-TXT
  2988            WHEN OTHER
  2989                PERFORM 361-Release-Ref
  2990            END-EVALUATE
  2991                .
  2992
  2993        351-ADD SECTION.
  2994            EVALUATE WS-Token-Prev-TXT
  2995            WHEN 'GIVING'
  2996                PERFORM 362-Release-Upd
  2997            WHEN 'TO'
  2998                PERFORM 362-Release-Upd
  2999            WHEN OTHER
  3000                PERFORM 361-Release-Ref
  3001            END-EVALUATE
  3002                .
  3003
  3004        351-ALLOCATE SECTION.
  3005            EVALUATE WS-Token-Prev-TXT
  3006            WHEN 'ALLOCATE'
  3007                PERFORM 362-Release-Upd
  3008                MOVE SPACES TO WS-Token-Prev-TXT
  3009            WHEN 'RETURNING'
  3010                PERFORM 362-Release-Upd
  3011            WHEN OTHER
  3012                PERFORM 361-Release-Ref
  3013            END-EVALUATE
  3014                .
  3015
  3016        351-CALL SECTION.
  3017            EVALUATE WS-Token-Prev-TXT
  3018            WHEN 'RETURNING'
  3019                PERFORM 362-Release-Upd
  3020            WHEN 'GIVING'
  3021                PERFORM 362-Release-Upd
  3022            WHEN OTHER
  3023 GC1213         PERFORM 365-Release-Arg
  3024            END-EVALUATE
  3025                .
  3026
  3027        351-COMPUTE SECTION.
  3028            EVALUATE WS-Token-Prev-TXT
  3029            WHEN 'COMPUTE'
  3030                PERFORM 362-Release-Upd
  3031            WHEN OTHER
  3032                PERFORM 361-Release-Ref
  3033            END-EVALUATE
  3034                .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                 Page: 73
====== ========================================================================================
 3035
 3036        351-DIVIDE SECTION.
 3037            EVALUATE WS-Token-Prev-TXT
 3038            WHEN 'INTO'
 3039                PERFORM 363-Set-Upd
 3040                MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
 3041            WHEN 'GIVING'
 3042                IF WS-Held-Reference-TXT NOT = SPACES
 3043                    MOVE WS-Held-Reference-TXT To F-Sort-Work-REC
 3044                    MOVE SPACES         To WS-Held-Reference-TXT
 3045                                           F-SW-Ref-Flag-CHR
 3046                    RELEASE F-Sort-Work-REC
 3047                END-IF
 3048                PERFORM 362-Release-Upd
 3049            WHEN 'REMAINDER'
 3050                PERFORM 362-Release-Upd
 3051            WHEN OTHER
 3052                PERFORM 361-Release-Ref
 3053            END-EVALUATE
 3054            .
 3055
 3056        351-FREE SECTION.
 3057            PERFORM 362-Release-Upd
 3058            .
 3059
 3060 GC1213 351-GENERATE SECTION.
 3061 GC1213     PERFORM 362-Release-Upd
 3062 GC1213     .
 3063
 3064        351-INITIALIZE SECTION.
 3065            EVALUATE WS-Token-Prev-TXT
 3066            WHEN 'INITIALIZE'
 3067                PERFORM 362-Release-Upd
 3068            WHEN 'REPLACING'
 3069                PERFORM 361-Release-Ref
 3070            END-EVALUATE
 3071            .
 3072
 3073 GC1213 351-INITIATE SECTION.
 3074 GC1213     PERFORM 362-Release-Upd
 3075 GC1213     .
 3076
 3077        351-INSPECT SECTION.
 3078            EVALUATE WS-Token-Prev-TXT
 3079            WHEN 'INSPECT'
 3080                PERFORM 364-Set-Ref
 3081                MOVE SPACES TO WS-Held-Reference-TXT
 3082                MOVE SPACES TO WS-Token-Prev-TXT
 3083            WHEN 'TALLYING'
 3084                PERFORM 362-Release-Upd
 3085                MOVE SPACES TO WS-Token-Prev-TXT
 3086            WHEN 'REPLACING'
 3087                IF WS-Held-Reference-TXT NOT = SPACES
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                 Page: 74
====== ============================================================================
 3088                    MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3089                    MOVE SPACES          TO WS-Held-Reference-TXT
 3090                    MOVE '*'             TO F-SW-Ref-Flag-CHR
 3091                    RELEASE F-Sort-Work-REC
 3092                 END-IF
 3093                 MOVE SPACES TO WS-Token-Prev-TXT
 3094            WHEN 'CONVERTING'
 3095               IF WS-Held-Reference-TXT NOT = SPACES
 3096                    MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3097                    MOVE SPACES          TO WS-Held-Reference-TXT
 3098                    MOVE '*'             TO F-SW-Ref-Flag-CHR
 3099                    RELEASE F-Sort-Work-REC
 3100                 END-IF
 3101                 MOVE SPACES TO WS-Token-Prev-TXT
 3102            WHEN OTHER
 3103               PERFORM 361-Release-Ref
 3104            END-EVALUATE
 3105               .
 3106
 3107        351-MOVE SECTION.
 3108            EVALUATE WS-Token-Prev-TXT
 3109            WHEN 'TO'
 3110               PERFORM 362-Release-Upd
 3111            WHEN OTHER
 3112               PERFORM 361-Release-Ref
 3113            END-EVALUATE
 3114               .
 3115
 3116        351-MULTIPLY SECTION.
 3117            EVALUATE WS-Token-Prev-TXT
 3118            WHEN 'BY'
 3119               PERFORM 363-Set-Upd
 3120               MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
 3121            WHEN 'GIVING'
 3122               MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3123               MOVE SPACES          TO WS-Held-Reference-TXT
 3124                                       F-SW-Ref-Flag-CHR
 3125               RELEASE F-Sort-Work-REC
 3126               PERFORM 362-Release-Upd
 3127            WHEN OTHER
 3128               PERFORM 361-Release-Ref
 3129            END-EVALUATE
 3130               .
 3131
 3132        351-PERFORM SECTION.
 3133            EVALUATE WS-Token-Prev-TXT
 3134            WHEN 'VARYING'
 3135               PERFORM 362-Release-Upd
 3136               MOVE SPACES TO WS-Token-Prev-TXT
 3137            WHEN 'AFTER'
 3138               PERFORM 362-Release-Upd
 3139               MOVE SPACES TO WS-Token-Prev-TXT
 3140            WHEN OTHER
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 75
====== =========================================================================
 3141             PERFORM 361-Release-Ref
 3142         END-EVALUATE
 3143         .
 3144
 3145     351-SET SECTION.
 3146         EVALUATE WS-Token-Prev-TXT
 3147         WHEN 'SET'
 3148             PERFORM 362-Release-Upd
 3149         WHEN OTHER
 3150             PERFORM 361-Release-Ref
 3151         END-EVALUATE
 3152         .
 3153
 3154     351-STRING SECTION.
 3155         EVALUATE WS-Token-Prev-TXT
 3156         WHEN 'INTO'
 3157             PERFORM 362-Release-Upd
 3158         WHEN 'POINTER'
 3159             PERFORM 362-Release-Upd
 3160         WHEN OTHER
 3161             PERFORM 361-Release-Ref
 3162         END-EVALUATE
 3163         .
 3164
 3165     351-SUBTRACT SECTION.
 3166         EVALUATE WS-Token-Prev-TXT
 3167         WHEN 'GIVING'
 3168             PERFORM 362-Release-Upd
 3169         WHEN 'FROM'
 3170             PERFORM 362-Release-Upd
 3171         WHEN OTHER
 3172             PERFORM 361-Release-Ref
 3173         END-EVALUATE
 3174         .
 3175
 3176 GC1213 351-TERMINATE SECTION.
 3177 GC1213     PERFORM 362-Release-Upd
 3178 GC1213     .
 3179
 3180     351-TRANSFORM SECTION.
 3181         EVALUATE WS-Token-Prev-TXT
 3182         WHEN 'TRANSFORM'
 3183             PERFORM 362-Release-Upd
 3184             MOVE SPACES TO WS-Token-Prev-TXT
 3185         WHEN OTHER
 3186             PERFORM 361-Release-Ref
 3187         END-EVALUATE
 3188         .
 3189
 3190     351-UNSTRING SECTION.
 3191         EVALUATE WS-Token-Prev-TXT
 3192         WHEN 'INTO'
 3193             PERFORM 362-Release-Upd
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                                  /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 76
====== =================================================================================
 3194          WHEN 'DELIMITER'
 3195              PERFORM 362-Release-Upd
 3196          WHEN 'COUNT'
 3197              PERFORM 362-Release-Upd
 3198          WHEN 'POINTER'
 3199              PERFORM 362-Release-Upd
 3200          WHEN 'TALLYING'
 3201              PERFORM 362-Release-Upd
 3202          WHEN OTHER
 3203              PERFORM 361-Release-Ref
 3204          END-EVALUATE
 3205          .
 3206
 3207      360-Release-Def SECTION.
 3208          MOVE SPACES              TO F-Sort-Work-REC
 3209          MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3210          MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3211          MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3212          MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3213          MOVE WS-Curr-Line-NUM      TO F-SW-Def-Line-NUM
 3214          MOVE 0                     TO F-SW-Ref-Line-NUM
 3215          RELEASE F-Sort-Work-REC
 3216          .
 3217
 3218      361-Release-Ref SECTION.
 3219          PERFORM 364-Set-Ref
 3220          RELEASE F-Sort-Work-REC
 3221          .
 3222
 3223      362-Release-Upd SECTION.
 3224          PERFORM 363-Set-Upd
 3225          RELEASE F-Sort-Work-REC
 3226          .
 3227
 3228      363-Set-Upd SECTION.
 3229          MOVE SPACES              TO F-Sort-Work-REC
 3230          MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3231          MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3232          MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3233          MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3234          MOVE WS-Curr-Line-NUM      TO F-SW-Ref-Line-NUM
 3235          MOVE '*'                   TO F-SW-Ref-Flag-CHR
 3236          .
 3237
 3238      364-Set-Ref SECTION.
 3239          MOVE SPACES              TO F-Sort-Work-REC
 3240          MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3241          MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3242          MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3243          MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3244          MOVE WS-Curr-Line-NUM      TO F-SW-Ref-Line-NUM
 3245          .
 3246
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 77
====== =======================================================================================
 3247 GC1213 365-Release-Arg SECTION.
 3248 GC1213      PERFORM 366-Set-Arg
 3249 GC1213      RELEASE F-Sort-Work-REC
 3250 GC1213      .
 3251
 3252 GC1213 366-Set-Arg SECTION.
 3253 GC1213      MOVE SPACES              TO F-Sort-Work-REC
 3254 GC1213      MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3255 GC1213      MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3256 GC1213      MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3257 GC1213      MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3258 GC1213      MOVE WS-Curr-Line-NUM      TO F-SW-Ref-Line-NUM
 3259 GC1213      MOVE 'C'                   TO F-SW-Ref-Flag-CHR
 3260 GC1213      .
 3261
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 78
====== ========================================================================

  3263        400-Produce-Xref-Listing SECTION.
  3264            MOVE SPACES        TO WS-Xref-Detail-Line-TXT
  3265                                  WS-Group-Indicators-TXT
  3266            MOVE 0             TO WS-I-SUB
  3267                                  WS-Lines-Left-NUM
  3268 GC0710     MOVE 'N'           TO WS-RS-Duplicate-CHR
  3269            PERFORM FOREVER
  3270                RETURN F-Sort-Work-FILE AT END
  3271 GC1213         IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3272 GC1213             PERFORM 410-Generate-Report-Line
  3273 GC1213         END-IF
  3274 GC1213         MOVE SPACES TO WS-Xref-Detail-Line-TXT
  3275 GC1213         PERFORM 410-Generate-Report-Line
  3276 GC1213             UNTIL WS-Lines-Left-NUM = 0
  3277 GC1213         MOVE 'Y' TO WS-Suppress-FF-CHR
  3278 GC1213         PERFORM 420-Generate-Xref-Footer
  3279                 EXIT PERFORM
  3280            END-RETURN
  3281            IF F-SW-Prog-ID-TXT  NOT = WS-GI-Prog-ID-TXT
  3282            OR F-SW-Token-Uc-TXT NOT = WS-GI-Token-TXT
  3283 GC0710         MOVE 'N' TO WS-RS-Duplicate-CHR
  3284                IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3285                    PERFORM 410-Generate-Report-Line
  3286                END-IF
  3287                IF F-SW-Prog-ID-TXT NOT = WS-GI-Prog-ID-TXT
  3288 GC1213             MOVE SPACES TO WS-Xref-Detail-Line-TXT
  3289 GC1213             PERFORM 410-Generate-Report-Line
  3290 GC1213                 UNTIL WS-Lines-Left-NUM = 0
  3291                END-IF
  3292                MOVE F-SW-Prog-ID-TXT  TO WS-GI-Prog-ID-TXT
  3293                MOVE F-SW-Token-Uc-TXT TO WS-GI-Token-TXT
  3294            END-IF
  3295 GC0710     IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
  3296 GC0710     AND F-SW-Def-Line-NUM NOT = SPACES
  3297 GC0710     AND WS-Xref-Detail-Line-TXT NOT = SPACES
  3298 GC0710         MOVE 'Y' TO WS-RS-Duplicate-CHR
  3299 GC0710         PERFORM 410-Generate-Report-Line
  3300 GC0710         MOVE 0 TO WS-I-SUB
  3301 GC0710         MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3302 GC0710         MOVE '  (Duplicate Definition)' TO WS-XDL-Token-TXT
  3303 GC0710         MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
  3304 GC0710         MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
  3305 GC0710         EXIT PERFORM CYCLE
  3306 GC0710     END-IF
  3307 GC0710     IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
  3308 GC0710     AND F-SW-Def-Line-NUM = SPACES
  3309 GC0710     AND WS-RS-Duplicate-CHR = 'Y'
  3310 GC0710         MOVE 'N' TO WS-RS-Duplicate-CHR
  3311 GC0710         PERFORM 410-Generate-Report-Line
  3312 GC0710         MOVE 0 TO WS-I-SUB
  3313 GC0710         MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3314 GC0710         MOVE '  (Duplicate References)' TO WS-XDL-Token-TXT
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 79
====== =================================================================================
  3315 GC0710        END-IF
  3316               IF WS-Xref-Detail-Line-TXT = SPACES
  3317                   MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3318                   MOVE F-SW-Token-TXT TO WS-XDL-Token-TXT
  3319                   MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
  3320                   IF F-SW-Def-Line-NUM NOT = SPACES
  3321                       MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
  3322                   END-IF
  3323               END-IF
  3324               IF F-SW-Reference-TXT > '000000'
  3325                   ADD 1 TO WS-I-SUB
  3326                   IF WS-I-SUB > WS-Xref-Lines-Per-Rec-NUM
  3327                       PERFORM 410-Generate-Report-Line
  3328                       MOVE 1 TO WS-I-SUB
  3329                   END-IF
  3330                   MOVE F-SW-Ref-Line-NUM
  3331                     TO WS-XDL-Ref-Line-NUM (WS-I-SUB)
  3332                   MOVE F-SW-Ref-Flag-CHR
  3333                     TO WS-XDL-Ref-Flag-CHR (WS-I-SUB)
  3334               END-IF
  3335           END-PERFORM
  3336           IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3337               PERFORM 410-Generate-Report-Line
  3338           END-IF
  3339               .
```

====== =============================================================================

```
  3341       410-Generate-Report-Line SECTION.
  3342           IF WS-Lines-Left-NUM < 1
  3343 GC1213       PERFORM 420-Generate-Xref-Footer
  3344 GC1213       ADD  1         TO WS-Page-NUM
  3345 GC1213       MOVE 'Page:'    TO WS-PN-Literal-TXT
  3346 GC1213       MOVE WS-Page-NUM TO WS-PN-Page-NUM
  3347 GC1213       CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
  3348 GC1213       CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
  3349 GC1213       IF L-Listing-CD = 1 *> LANDSCAPE
  3350 GC1213          MOVE WS-Version-TXT
  3351 GC1213            TO F-Listing-135-REC
  3352 GC1213          MOVE 'Cross-Reference Listing'
  3353 GC1213            TO F-Listing-135-REC(25:23)
  3354 GC1213          MOVE WS-Formatted-DT
  3355 GC1213            TO F-Listing-135-REC(126:10)
  3356 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
  3357 GC1213          MOVE WS-Program-Path-TXT
  3358 GC1213            TO F-Listing-135-REC
  3359 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
  3360 GC1213          MOVE 'PROGRAM-ID     Identifier/Register/Function' &
  3361 GC1213              '   Defn  Where Defined  References'
  3362 GC1213            TO F-Listing-135-REC
  3363 GC1213          MOVE WS-Page-No-TXT
  3364 GC1213            TO F-Listing-135-REC(126:10)
  3365 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
  3366 GC1213          MOVE ALL '=' TO F-Listing-135-REC
  3367 GC1213          MOVE SPACE TO F-Listing-135-REC(16:1)
  3368 GC1213                       F-Listing-135-REC(49:1)
  3369 GC1213                       F-Listing-135-REC(56:1)
  3370 GC1213                       F-Listing-135-REC(72:1)
  3371 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
  3372 GC1213       ELSE              *> PORTRAIT
  3373 GC1213          MOVE WS-Version-TXT
  3374 GC1213            TO F-Listing-96-REC
  3375 GC1213          MOVE 'Cross-Reference Listing'
  3376 GC1213            TO F-Listing-96-REC(25:23)
  3377 GC1213          MOVE WS-Formatted-DT
  3378 GC1213            TO F-Listing-96-REC(87:10)
  3379 GC1213          WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
  3380 GC1213          MOVE WS-Program-Path-TXT(40:96)
  3381 GC1213            TO F-Listing-96-REC
  3382 GC1213          WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
  3383 GC1213          MOVE 'PROGRAM-ID     Identifier/Register/Function' &
  3384 GC1213              '   Defn  Where Defined  References'
  3385 GC1213            TO F-Listing-96-REC
  3386 GC1213          MOVE WS-Page-No-TXT
  3387 GC1213            TO F-Listing-96-REC(87:10)
  3388 GC1213          WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
  3389 GC1213          MOVE ALL '=' TO F-Listing-96-REC
  3390 GC1213          MOVE SPACE TO F-Listing-96-REC(16:1)
  3391 GC1213                       F-Listing-96-REC(49:1)
  3392 GC1213                       F-Listing-96-REC(56:1)
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 81
====== =================================================================================
 3393 GC1213                         F-Listing-96-REC(72:1)
 3394 GC1213             WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
 3395 GC1213          END-IF
 3396 GC1213          COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
 3397           END-IF
 3398 GC1213    IF L-Listing-CD = 1 *> LANDSCAPE
 3399 GC1213        WRITE F-Listing-135-REC FROM WS-Xref-Detail-Line-TXT
 3400 GC1213            BEFORE 1
 3401 GC1213    ELSE                *> PORTRAIT
 3402 GC1213        WRITE F-Listing-96-REC FROM WS-Xref-Detail-Line-TXT
 3403 GC1213            BEFORE 1
 3404 GC1213    END-IF
 3405          MOVE SPACES TO WS-Xref-Detail-Line-TXT
 3406          MOVE 0 TO WS-I-SUB
 3407          SUBTRACT 1 FROM WS-Lines-Left-NUM
 3408              .
 3409 GC1213 420-Generate-Xref-Footer SECTION.
 3410 GC1213    IF L-Listing-CD = 1 *> LANDSCAPE
 3411 GC1213        WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
 3412 GC1213        MOVE ALL '='
 3413 GC1213          TO F-Listing-135-REC
 3414 GC1213        WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
 3415 GC1213        MOVE WS-Copyright-TXT
 3416 GC1213          TO F-Listing-135-REC
 3417 GC1213        MOVE WS-Page-No-TXT
 3418 GC1213          TO F-Listing-135-REC(126:10)
 3419 GC1213        IF WS-Suppress-FF-CHR = 'Y'
 3420 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #3
 3421 GC1213        ELSE
 3422 GC1213            WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
 3423 GC1213            WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Charac
      ter
 3424 GC1213        END-IF
 3425 GC1213    ELSE                *> PORTRAIT
 3426 GC1213        WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
 3427 GC1213        MOVE ALL '='
 3428 GC1213          TO F-Listing-96-REC
 3429 GC1213        WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
 3430 GC1213        MOVE WS-Copyright-TXT
 3431 GC1213          TO F-Listing-96-REC
 3432 GC1213        MOVE WS-Page-No-TXT
 3433 GC1213          TO F-Listing-96-REC(87:10)
 3434 GC1213        IF WS-Suppress-FF-CHR = 'Y'
 3435 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #3
 3436 GC1213        ELSE
 3437 GC1213            WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
 3438 GC1213            WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Charact
      er
 3439 GC1213        END-IF
 3440 GC1213    END-IF
 3441 GC1213        .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                           Page: 82
====== =============================================================================

  3443         500-Produce-Source-Listing SECTION.
  3444             OPEN INPUT F-Original-Src-FILE
  3445                        F-Expanded-Src-FILE
  3446             MOVE 0 TO WS-Src-Line-NUM
  3447             PERFORM FOREVER
  3448                 READ F-Expanded-Src-FILE AT END
  3449 GC1213             MOVE SPACES TO WS-Src-Detail-Line-TXT
  3450 GC1213             PERFORM 530-Generate-Source-Line
  3451 GC1213                 UNTIL WS-Lines-Left-NUM = 0
  3452                     EXIT PERFORM
  3453                 END-READ
  3454 GC0712         IF F-ES-1-7-TXT NOT = '#DEFLIT'
  3455 GC0712             IF F-ES-1-CHR = '#'
  3456 GC0712                 PERFORM 510-Control-Record
  3457 GC0712             ELSE
  3458 GC0712                 PERFORM 520-Expanded-Src-Record
  3459 GC0712             END-IF
  3460 GC0712         END-IF
  3461             END-PERFORM
  3462             CLOSE F-Original-Src-FILE
  3463                   F-Expanded-Src-FILE
  3464             .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 83
====== ============================================================================

  3466        510-Control-Record SECTION.
  3467            UNSTRING F-ES-2-256-TXT-256
  3468                DELIMITED BY '"'
  3469                INTO WS-Temp-10-Chars-TXT
  3470                     WS-Temp-256-Chars-TXT
  3471                     WS-Dummy-TXT
  3472 GC1010     IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
  3473 GC1010        TRIM(WS-Main-Module-Name-TXT) *> Main Pgm
  3474               SET WS-RS-In-Main-Module-BOOL TO TRUE
  3475               IF WS-Src-Line-NUM > 0
  3476                   READ F-Expanded-Src-FILE END-READ
  3477               END-IF
  3478           ELSE *> COPY
  3479               SET WS-RS-In-Copybook-BOOL TO TRUE
  3480           END-IF
  3481               .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 84
====== =========================================================================

  3483        520-Expanded-Src-Record SECTION.
  3484            IF WS-RS-In-Main-Module-BOOL
  3485                ADD 1 To WS-Curr-Line-NUM
  3486 GC0712        READ F-Original-Src-FILE AT END CONTINUE END-READ
  3487                ADD 1 TO WS-Src-Line-NUM
  3488                MOVE SPACES TO WS-Src-Detail-Line-TXT
  3489                MOVE WS-Src-Line-NUM TO WS-SDL-Line-NUM
  3490 GC1213        MOVE F-Original-Src-REC TO WS-SDL-Statement-TXT
  3491 GC0712        MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
  3492 GC0712          TO WS-Temp-65-Chars-TXT
  3493 GC0712        INSPECT WS-Temp-65-Chars-TXT REPLACING ALL '.' BY SPACE
  3494 GC0712        EVALUATE TRUE
  3495 GC0712            WHEN F-OS-7-CHR = '/'
  3496 GC1213                MOVE SPACES TO WS-Src-Detail-Line-TXT
  3497 GC1213                PERFORM 530-Generate-Source-Line
  3498 GC1213                    UNTIL WS-Lines-Left-NUM = 0
  3499 GC0712            WHEN WS-Temp-65-Chars-TXT = "eject"
  3500 GC1213                MOVE SPACES TO WS-Src-Detail-Line-TXT
  3501 GC1213                PERFORM 530-Generate-Source-Line
  3502 GC1213                    UNTIL WS-Lines-Left-NUM = 0
  3503 GC0712                EXIT SECTION
  3504 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip1"
  3505 GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
  3506 GC0712                PERFORM 530-Generate-Source-Line
  3507 GC0712                EXIT SECTION
  3508 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip2"
  3509 GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
  3510 GC0712                PERFORM 530-Generate-Source-Line 2 TIMES
  3511 GC0712                EXIT SECTION
  3512 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip3"
  3513 GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
  3514 GC0712                PERFORM 530-Generate-Source-Line 3 TIMES
  3515 GC0712                EXIT SECTION
  3516 GC0712        END-EVALUATE
  3517                PERFORM 530-Generate-Source-Line
  3518            ELSE
  3519                IF F-Expanded-Src-REC NOT = SPACES
  3520                    MOVE SPACES TO WS-Src-Detail-Line-TXT
  3521 GC1213            MOVE F-Expanded-Src-REC
  3522                      TO WS-SDL-Statement-TXT
  3523 GC0712            MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
  3524 GC0712              TO WS-Temp-65-Chars-TXT
  3525 GC0712            INSPECT WS-Temp-65-Chars-TXT
  3526 GC0712                REPLACING ALL '.' BY SPACE
  3527 GC0712            EVALUATE TRUE
  3528 GC0712                WHEN WS-Temp-65-Chars-TXT = "eject"
  3529 GC0712                    MOVE 0 TO WS-Lines-Left-NUM
  3530 GC0712                    EXIT SECTION
  3531 GC0712                WHEN WS-Temp-65-Chars-TXT = "skip1"
  3532 GC0712                    MOVE SPACES TO WS-Src-Detail-Line-TXT
  3533 GC0712                    PERFORM 530-Generate-Source-Line
  3534 GC0712                    EXIT SECTION
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 85
====== =====================================================================================
  3535 GC0712               WHEN WS-Temp-65-Chars-TXT = "skip2"
  3536 GC0712                   MOVE SPACES TO WS-Src-Detail-Line-TXT
  3537 GC0712                   PERFORM 530-Generate-Source-Line 2 TIMES
  3538 GC0712                   EXIT SECTION
  3539 GC0712               WHEN WS-Temp-65-Chars-TXT = "skip3"
  3540 GC0712                   MOVE SPACES TO WS-Src-Detail-Line-TXT
  3541 GC0712                   PERFORM 530-Generate-Source-Line 3 TIMES
  3542 GC0712                   EXIT SECTION
  3543 GC0712             END-EVALUATE
  3544                     PERFORM 530-Generate-Source-Line
  3545                 END-IF
  3546             END-IF
  3547             .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 86
======  ========================================================================

  3549        530-Generate-Source-Line SECTION.
  3550 GC1213     MOVE 1 TO WS-Src-Lines-NUM
  3551 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  3552 GC1213         IF WS-SDL-Statement-TXT(129:128) > SPACES
  3553 GC1213             ADD 1 TO WS-Src-Lines-NUM
  3554 GC1213         END-IF
  3555 GC1213     ELSE                 *> PORTRAIT
  3556 GC1213         IF WS-SDL-Statement-TXT(90:167) > SPACES
  3557 GC1213             ADD 1 TO WS-Src-Lines-NUM
  3558 GC1213             IF WS-SDL-Statement-TXT(179:78) > SPACES
  3559 GC1213                 ADD 1 TO WS-Src-Lines-NUM
  3560 GC1213             END-IF
  3561 GC1213         END-IF
  3562 GC1213     END-IF
  3563 GC1213     IF WS-Lines-Left-NUM < WS-Src-Lines-NUM
  3564 GC1213         IF WS-Page-Num > 0 *> Don't print footer before page 1
  3565 GC1213             IF L-Listing-CD = 1 *> LANDSCAPE
  3566 GC1213                 IF WS-Src-Lines-NUM = 2
  3567 GC1213                     WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Blank Line
  3568 GC1213                 END-IF
  3569 GC1213                 WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3570 GC1213                 MOVE ALL '='
  3571 GC1213                   TO F-Listing-135-REC
  3572 GC1213                 WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
  3573 GC1213                 MOVE WS-Copyright-TXT
  3574 GC1213                   TO F-Listing-135-REC
  3575 GC1213                 MOVE WS-Page-No-TXT
  3576 GC1213                   TO F-Listing-135-REC(126:10)
  3577 GC1213                 WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
  3578 GC1213                 WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Ch
       aracter
  3579 GC1213             ELSE                 *> PORTRAIT
  3580 GC1213                 EVALUATE WS-Src-Lines-NUM
  3581 GC1213                 WHEN 1 *> Need no extra blank lines
  3582 GC1213                     CONTINUE
  3583 GC1213                 WHEN 2 *> Need 1 extra blank line
  3584 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3585 GC1213                 WHEN 3 *> Need 2 extra blank lines
  3586 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3587 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3588 GC1213                 END-EVALUATE
  3589 GC1213                 WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3590 GC1213                 MOVE ALL '='
  3591 GC1213                   TO F-Listing-96-REC
  3592 GC1213                 WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
  3593 GC1213                 MOVE WS-Copyright-TXT
  3594 GC1213                   TO F-Listing-96-REC
  3595 GC1213                 MOVE WS-Page-No-TXT
  3596 GC1213                   TO F-Listing-96-REC(87:10)
  3597 GC1213                 WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
  3598 GC1213                 WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Cha
       racter
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 87
====== ==========================================================================
  3599 GC1213            END-IF
  3600 GC1213          END-IF
  3601 GC1213          ADD  1         TO WS-Page-NUM
  3602 GC1213          MOVE 'Page:'     TO WS-PN-Literal-TXT
  3603 GC1213          MOVE WS-Page-NUM TO WS-PN-Page-NUM
  3604 GC1213          CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
  3605 GC1213          CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
  3606 GC1213          IF L-Listing-CD = 1 *> LANDSCAPE
  3607 GC1213              MOVE WS-Version-TXT
  3608 GC1213                TO F-Listing-135-REC
  3609 GC1213              MOVE 'Source Listing'
  3610 GC1213                TO F-Listing-135-REC(25:14)
  3611 GC1213              MOVE WS-Formatted-DT
  3612 GC1213                TO F-Listing-135-REC(126:10)
  3613 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
  3614 GC1213              MOVE WS-Program-Path-TXT
  3615 GC1213                TO F-Listing-135-REC
  3616 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
  3617 GC1213              MOVE 'Line   Statement'
  3618 GC1213                TO F-Listing-135-REC
  3619 GC1213              MOVE WS-Page-No-TXT
  3620 GC1213                TO F-Listing-135-REC(126:10)
  3621 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
  3622 GC1213              MOVE WS-Src-Dashes-TXT
  3623 GC1213                TO F-Listing-135-REC
  3624 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
  3625 GC1213          ELSE                *> PORTRAIT
  3626 GC1213              MOVE WS-Version-TXT
  3627 GC1213                TO F-Listing-96-REC
  3628 GC1213              MOVE 'Source Listing'
  3629 GC1213                TO F-Listing-96-REC(25:14)
  3630 GC1213              MOVE WS-Formatted-DT
  3631 GC1213                TO F-Listing-96-REC(87:10)
  3632 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
  3633 GC1213              MOVE WS-Program-Path-TXT(40:96)
  3634 GC1213                TO F-Listing-96-REC
  3635 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
  3636 GC1213              MOVE 'Line   Statement'
  3637 GC1213                TO F-Listing-96-REC
  3638 GC1213              MOVE WS-Page-No-TXT
  3639 GC1213                TO F-Listing-96-REC(87:10)
  3640 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
  3641 GC1213              MOVE WS-Src-Dashes-TXT
  3642 GC1213                TO F-Listing-96-REC
  3643 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
  3644 GC1213          END-IF
  3645 GC1213          COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
  3646 GC1213        END-IF
  3647 GC1213        IF L-Listing-CD = 1 *> LANDSCAPE
  3648 GC1213            EVALUATE WS-Src-Lines-NUM
  3649 GC1213            WHEN 1
  3650 GC1213                MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3651 GC1213                WRITE F-Listing-96-REC BEFORE 1
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 88
====== ==========================================================================
  3652 GC1213            SUBTRACT 1 FROM WS-Lines-Left-NUM
  3653 GC1213          WHEN 2
  3654 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3655 GC1213            MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3656 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 1-128 of stmnt
  3657 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3658 GC1213            MOVE WS-Src-Hold-TXT(129:128) TO WS-SDL-Statement-TXT
  3659 GC1213            MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3660 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 129-256 of stmnt
  3661 GC1213            SUBTRACT 2 FROM WS-Lines-Left-NUM
  3662 GC1213          END-EVALUATE
  3663 GC1213        ELSE               *> PORTRAIT
  3664 GC1213          EVALUATE WS-Src-Lines-NUM
  3665 GC1213          WHEN 1 *> Print only chars 1-89 of stmnt
  3666 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3667 GC1213                BEFORE 1
  3668 GC1213            SUBTRACT 1 FROM WS-Lines-Left-NUM
  3669 GC1213          WHEN 2 *> Print only chars 1-89 and 90-178 of text
  3670 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3671 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3672 GC1213                BEFORE 1
  3673 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3674 GC1213            MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3675 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3676 GC1213                BEFORE 1
  3677 GC1213            SUBTRACT 2 FROM WS-Lines-Left-NUM
  3678 GC1213          WHEN 3 *> Print chars 1-89, 90-178 and 179-256 of stmnt
  3679 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3680 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3681 GC1213                BEFORE 1
  3682 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3683 GC1213            MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3684 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3685 GC1213                BEFORE 1
  3686 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3687 GC1213            MOVE WS-Src-Hold-TXT(179:78) TO WS-SDL-Statement-TXT
  3688 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3689 GC1213                BEFORE 1
  3690 GC1213            SUBTRACT 3 FROM WS-Lines-Left-NUM
  3691 GC1213          END-EVALUATE
  3692 GC1213        END-IF
  3693            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3694            .
  3695
  3696      END PROGRAM LISTING.
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                        2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References       Page: 89
===============  ==============================  ======  ===============  ========================
CHECKSRC         000-Main                        1318 PROCEDURE
CHECKSRC         L-A1-CHR                        1308 LINKAGE          1320   1332   1335
                                                                       1342
CHECKSRC         L-A2-IDENT-DIVISION-BOOL        1313 LINKAGE          1364*
CHECKSRC         L-A2-LINKAGE-SECTION-BOOL       1312 LINKAGE          1358*
CHECKSRC         L-A2-Nothing-Special-BOOL       1314 LINKAGE          1319*
CHECKSRC         L-Argument-1-TXT                1307 LINKAGE          1316
CHECKSRC         L-Argument-2-CHR                1311 LINKAGE          1317
CHECKSRC         WS-Compressed-Src-TXT           1294 WORKING-STORAGE  1329*  1352   1356
                                                                       1362
CHECKSRC         WS-CS-CHR                       1295 WORKING-STORAGE  1336*  1342*  1351
                                                                       1355   1361
CHECKSRC         WS-I-SUB                        1303 WORKING-STORAGE  1330*  1331   1332
                                                                       1335   1342   1348*
                                                                       1349   1351   1352
                                                                       1355   1355   1356
                                                                       1361   1361   1362
CHECKSRC         WS-J-SUB                        1305 WORKING-STORAGE  1328*  1334*  1336
                                                                       1341*  1342
CHECKSRC         WS-RS-Found-SPACE-CHR           1299 WORKING-STORAGE
CHECKSRC         WS-RS-Not-Skipping-SPACE-BOOL   1301 WORKING-STORAGE  1327*  1333   1340*
CHECKSRC         WS-RS-Skipping-SPACE-BOOL       1300 WORKING-STORAGE  1337*
CHECKSRC         WS-Runtime-Switches-TXT         1298 WORKING-STORAGE
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                       2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn  Where Defined   References      Page: 90
=============== =============================== ====== =============== ========================
GCic            000-File-Error                   657 PROCEDURE
GCic            000-Main                         678 PROCEDURE
GCic            100-Initialization               702 PROCEDURE            679
GCic            200-Let-User-Set-Switches        816 PROCEDURE            682
GCic            210-Run-Compiler                 907 PROCEDURE            683
GCic            220-Make-Listing                1043 PROCEDURE            687
GCic            230-Run-Program                 1074 PROCEDURE            691
GCic            240-Find-LINKAGE-SECTION        1176 PROCEDURE            750
GCic            250-Autoload-Listing            1215 PROCEDURE            693     1034     1068
GCic            900-Terminate                   1261 PROCEDURE            695      744      887
                                                                        1035     1169
GCic            COB-COLOR-BLACK                  181 [screenio    ]      442      447      537
                                                                         547      557      562
                                                                         572      579      594
                                                                         609      625      632
                                                                         639
GCic            COB-COLOR-BLUE                   181 [screenio    ]      525
GCic            COB-COLOR-CYAN                   181 [screenio    ]      538
GCic            COB-COLOR-GREEN                  181 [screenio    ]      448      563      610
                                                                         626
GCic            COB-COLOR-MAGENTA                181 [screenio    ]
GCic            COB-COLOR-RED                    181 [screenio    ]      531      595
GCic            COB-COLOR-WHITE                  181 [screenio    ]      443      526      532
                                                                         548      558      573
                                                                         580      633      640
GCic            COB-COLOR-YELLOW                 181 [screenio    ]
GCic            COB-SCR-BACK-TAB                 181 [screenio    ]
GCic            COB-SCR-BACKSPACE                181 [screenio    ]
GCic            COB-SCR-DELETE                   181 [screenio    ]
GCic            COB-SCR-ESC                      181 [screenio    ]      886
GCic            COB-SCR-F1                       181 [screenio    ]      833
GCic            COB-SCR-F10                      181 [screenio    ]
GCic            COB-SCR-F11                      181 [screenio    ]
GCic            COB-SCR-F12                      181 [screenio    ]      889
GCic            COB-SCR-F13                      181 [screenio    ]
GCic            COB-SCR-F14                      181 [screenio    ]
GCic            COB-SCR-F15                      181 [screenio    ]
GCic            COB-SCR-F16                      181 [screenio    ]
GCic            COB-SCR-F17                      181 [screenio    ]
GCic            COB-SCR-F18                      181 [screenio    ]
GCic            COB-SCR-F19                      181 [screenio    ]
GCic            COB-SCR-F2                       181 [screenio    ]      839
GCic            COB-SCR-F20                      181 [screenio    ]
GCic            COB-SCR-F21                      181 [screenio    ]
GCic            COB-SCR-F22                      181 [screenio    ]
GCic            COB-SCR-F23                      181 [screenio    ]
GCic            COB-SCR-F24                      181 [screenio    ]
GCic            COB-SCR-F25                      181 [screenio    ]
GCic            COB-SCR-F26                      181 [screenio    ]
GCic            COB-SCR-F27                      181 [screenio    ]
GCic            COB-SCR-F28                      181 [screenio    ]
GCic            COB-SCR-F29                      181 [screenio    ]
GCic            COB-SCR-F3                       181 [screenio    ]      845
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn  Where Defined   References   Page: 91
==============  ==============================  ====  ==============  ========================
GCic            COB-SCR-F30                     181 [screenio     ]
GCic            COB-SCR-F31                     181 [screenio     ]
GCic            COB-SCR-F32                     181 [screenio     ]
GCic            COB-SCR-F33                     181 [screenio     ]
GCic            COB-SCR-F34                     181 [screenio     ]
GCic            COB-SCR-F35                     181 [screenio     ]
GCic            COB-SCR-F36                     181 [screenio     ]
GCic            COB-SCR-F37                     181 [screenio     ]
GCic            COB-SCR-F38                     181 [screenio     ]
GCic            COB-SCR-F39                     181 [screenio     ]
GCic            COB-SCR-F4                      181 [screenio     ]      851
GCic            COB-SCR-F40                     181 [screenio     ]
GCic            COB-SCR-F41                     181 [screenio     ]
GCic            COB-SCR-F42                     181 [screenio     ]
GCic            COB-SCR-F43                     181 [screenio     ]
GCic            COB-SCR-F44                     181 [screenio     ]
GCic            COB-SCR-F45                     181 [screenio     ]
GCic            COB-SCR-F46                     181 [screenio     ]
GCic            COB-SCR-F47                     181 [screenio     ]
GCic            COB-SCR-F48                     181 [screenio     ]
GCic            COB-SCR-F49                     181 [screenio     ]
GCic            COB-SCR-F5                      181 [screenio     ]      857
GCic            COB-SCR-F50                     181 [screenio     ]
GCic            COB-SCR-F51                     181 [screenio     ]
GCic            COB-SCR-F52                     181 [screenio     ]
GCic            COB-SCR-F53                     181 [screenio     ]
GCic            COB-SCR-F54                     181 [screenio     ]
GCic            COB-SCR-F55                     181 [screenio     ]
GCic            COB-SCR-F56                     181 [screenio     ]
GCic            COB-SCR-F57                     181 [screenio     ]
GCic            COB-SCR-F58                     181 [screenio     ]
GCic            COB-SCR-F59                     181 [screenio     ]
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GCic            COB-SCR-F60                     181 [screenio     ]
GCic            COB-SCR-F61                     181 [screenio     ]
GCic            COB-SCR-F62                     181 [screenio     ]
GCic            COB-SCR-F63                     181 [screenio     ]
GCic            COB-SCR-F64                     181 [screenio     ]
GCic            COB-SCR-F7                      181 [screenio     ]      868
GCic            COB-SCR-F8                      181 [screenio     ]      874
GCic            COB-SCR-F9                      181 [screenio     ]      880
GCic            COB-SCR-FATAL                   181 [screenio     ]
GCic            COB-SCR-INSERT                  181 [screenio     ]
GCic            COB-SCR-KEY-DOWN                181 [screenio     ]
GCic            COB-SCR-KEY-END                 181 [screenio     ]
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GCic            COB-SCR-KEY-UP                  181 [screenio     ]
GCic            COB-SCR-KEY_DOWN                181 [screenio     ]
GCic            COB-SCR-KEY_UP                  181 [screenio     ]
GCic            COB-SCR-MAX-FIELD               181 [screenio     ]
GCic            COB-SCR-NO-FIELD                181 [screenio     ]
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GCic             COB-SCR-PAGE-DOWN                181 [screenio     ]
GCic             COB-SCR-PAGE-UP                  181 [screenio     ]
GCic             Cob-Scr-Page_Down                181 [screenio     ]
GCic             Cob-Scr-Page_Up                  181 [screenio     ]
GCic             COB-SCR-PRINT                    181 [screenio     ]
GCic             COB-SCR-TAB                      181 [screenio     ]
GCic             COB-SCR-TIME-OUT                 181 [screenio     ]
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GCic             F-Cobc-Output-REC                174 FILE              1012    1017*   1018
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GCic             F-Source-Code-FILE               176 FILE               167     658    1177
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GCic             F-Source-Code-REC                177 FILE              1186C   1200C
GCic             F1                                   WORKING-STORAGE    209
GCic             F12                                  WORKING-STORAGE    203
GCic             F2                                   WORKING-STORAGE    216
GCic             F3                                   WORKING-STORAGE    212
GCic             F4                                   WORKING-STORAGE    210
GCic             F5                                   WORKING-STORAGE    213     260
GCic             F6                                   WORKING-STORAGE    214
GCic             F7                                   WORKING-STORAGE    217
GCic             F8                                   WORKING-STORAGE    211
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GCic             LD-Horiz-Line                    436 SCREEN             804
GCic             LD-LL-Corner                     431 SCREEN             459     489     505
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GCic             LD-Lower-T                       435 SCREEN             491
GCic             LD-LR-Corner                     433 SCREEN             461     493     507
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GCic             LD-UL-Corner                     430 SCREEN             449     463     495
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GCic             LD-Upper-T                       434 SCREEN             465
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GCic             LD-Vert-Line                     437 SCREEN             453     454     456
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GCic             LPP                                  PROCEDURE         1054C
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GCic             RETURN-CODE                          PROCEDURE         1013    1046*   1060*
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GCic             S-Blank-SCR                      440 SCREEN             686    1237    1266
GCic             S-Switches-SCR                   442 SCREEN             830*    911    1001
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GCic            WS-Cmd-Args-TXT                  232   WORKING-STORAGE  726*    728      729
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GCic            WS-Cmd-End-Quote-CHR             234   WORKING-STORAGE  730*    733
GCic            WS-Cmd-SUB                       236   WORKING-STORAGE  727*    728      729
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GCic            WS-Cmd-TXT                       230   WORKING-STORAGE  908*    1003*    1008*
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GCic            WS-Cobc-Cmd-TXT                  238   WORKING-STORAGE  909*    918*     922*
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GCic            WS-Compilation-Switches-TXT      183   WORKING-STORAGE
GCic            WS-Config-Fn-TXT                 240   WORKING-STORAGE  914*    920
GCic            WS-CS-All-Switches-TXT           218   WORKING-STORAGE
GCic            WS-CS-Arg-H1-TXT                 185   WORKING-STORAGE  643*
GCic            WS-CS-Arg-H2-TXT                 186   WORKING-STORAGE  644*
GCic            WS-CS-Args-TXT                   184   WORKING-STORAGE  1157    1158
GCic            WS-CS-Config-NUM                 203   WORKING-STORAGE  635     890*     891
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GCic            WS-CS-DEBUG-CHR                  220   WORKING-STORAGE  596     834      835*
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GCic            WS-CS-EXECUTE-CHR                221   WORKING-STORAGE  599     689      852
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GCic            WS-CS-Extra-H1-TXT               206   WORKING-STORAGE  641*
GCic            WS-CS-Extra-H2-TXT               207   WORKING-STORAGE  642*
GCic            WS-CS-Extra-TXT                  205   WORKING-STORAGE  981     983
GCic            WS-CS-Filename-TXT               196   WORKING-STORAGE  635     913
GCic            WS-CS-Filenames-Table-TXT        195   WORKING-STORAGE
GCic            WS-CS-Filenames-TXT              187   WORKING-STORAGE  195
GCic            WS-CS-FREE-CHR                   222   WORKING-STORAGE  604     875      876*
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GCic            WS-CS-LIBRARY-CHR                223   WORKING-STORAGE  598     846      847*
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GCic            WS-CS-LISTING-CHR                224   WORKING-STORAGE  600     685      822*
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GCic            WS-CS-NOFUNC-CHR                 225   WORKING-STORAGE  602     863      864*
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GCic            WS-CS-Switch-Defaults-TXT        208 WORKING-STORAGE  219
GCic            WS-CS-TRACEALL-CHR               227 WORKING-STORAGE  597     840     841*
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GCic            WS-CS-WARNALL-CHR                228 WORKING-STORAGE  603     869     870*
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GCic            WS-Delete-Fn-TXT                 242 WORKING-STORAGE
GCic            WS-File-Name-TXT                 244 WORKING-STORAGE  167     666     671
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GCic            WS-File-Status-Message-TXT       248 WORKING-STORAGE
GCic            WS-FN-CHR                        245 WORKING-STORAGE  760     767*    771*
GCic            WS-FSM-Msg-TXT                   252 WORKING-STORAGE  661*    661*    661*
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GCic            WS-FSM-Status-CD                 250 WORKING-STORAGE  169     661     663
GCic            WS-Horizontal-Line-TXT           254 WORKING-STORAGE  450     460     464
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GCic            WS-I-SUB                         256 WORKING-STORAGE  758*    759     760
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GCic            WS-J-SUB                         258 WORKING-STORAGE  1102*   1103    1104
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GCic            WS-Listing-CD                    260 WORKING-STORAGE  819     858*    859
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GCic            WS-Listing-Filename-TXT          262 WORKING-STORAGE  164     995*    996C
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GCic            WS-Listing-TXT                   264 WORKING-STORAGE  616     821*    824*
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GCic             WS-OS-Cygwin-BOOL               300 WORKING-STORAGE     755      779      1094
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GCic             WS-OS-Dir-CHR                   287 WORKING-STORAGE     756*     760      771
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GCic             WS-OS-Exe-Ext-CONST             288 WORKING-STORAGE     1140     1141
GCic             WS-OS-Lib-Ext-CONST             289 WORKING-STORAGE     1146     1147
GCic             WS-OS-Lib-Type-CONST            290 WORKING-STORAGE     614
GCic             WS-OS-OSX-BOOL                  302 WORKING-STORAGE     1224
GCic             WS-OS-Type-CD                   291 WORKING-STORAGE     806      1053C
GCic             WS-OS-Type-FILLER-TXT           304 WORKING-STORAGE     310
GCic             WS-OS-Type-TXT                  311 WORKING-STORAGE     806
GCic             WS-OS-Types-TXT                 310 WORKING-STORAGE
GCic             WS-OS-UNIX-BOOL                 301 WORKING-STORAGE     1124
GCic             WS-OS-Windows-BOOL              299 WORKING-STORAGE     1217     1238
GCic             WS-Output-Msg-TXT               314 WORKING-STORAGE     533      662*     809*
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GCic             WS-Path-Delimiter-CHR           316 WORKING-STORAGE
GCic             WS-PFN-CHR                      323 WORKING-STORAGE     788      795*     799*
GCic             WS-Pgm-Nm-TXT                   326 WORKING-STORAGE     792*     797*     994
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GCic             WS-Prog-Extension-TXT           318 WORKING-STORAGE     793*     798*
GCic             WS-Prog-File-Name-TXT           322 WORKING-STORAGE     574      765*     770*
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GCic             WS-Prog-Folder-TXT              320 WORKING-STORAGE     575      764*     769*
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GCic             WS-RS-Compile-Failed-BOOL       332 WORKING-STORAGE     1021*    1033
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GCic             WS-RS-Double-Quote-Used-BOOL    337 WORKING-STORAGE     1092*    1118*    1152
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GCic             WS-RS-No-Switch-Chgs-CHR        341 WORKING-STORAGE
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GCic             WS-RS-Output-File-Avail-BOOL    346 WORKING-STORAGE     690      1002*
GCic             WS-RS-Output-File-Busy-BOOL     345 WORKING-STORAGE
GCic             WS-RS-Output-File-Busy-CHR      344 WORKING-STORAGE
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GCic             WS-RS-Source-Rec-Ident-BOOL     349 WORKING-STORAGE     1188     1194
GCic             WS-RS-Source-Rec-Ignored-BOOL   350 WORKING-STORAGE     1192*
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GCic              WS-RS-Switch-Is-Bad-BOOL          352 WORKING-STORAGE
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GCic              WS-Runtime-Switches-TXT           328 WORKING-STORAGE
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LISTING          F-SW-Ref-Line-NUM               1455 FILE              2417    3214*   3234*
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LISTING          F-SW-Reference-TXT              1454 FILE              3324
LISTING          F-SW-Section-TXT                1452 FILE              3212*   3233*   3243*
                                                                         3257*   3303    3319
LISTING          F-SW-Token-TXT                  1451 FILE              3211*   3232*   3242*
                                                                         3256*   3318
LISTING          F-SW-Token-Uc-TXT               1450 FILE              2416    3210*   3231*
                                                                         3241*   3255*   3282
                                                                         3293    3295    3307
LISTING          L-Listing-CD                    2402 LINKAGE           2409    2449    2486
                                                                         3349    3398    3410
                                                                         3551    3565    3606
                                                                         3647
LISTING          L-Listing-Fn-TXT                2392 LINKAGE           1418    2404
LISTING          L-LPP-NUM                        2398 LINKAGE           2407    2487
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                        2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function    Defn   Where Defined   References    Page: 100
==============  ==============================  ======  ==============  ========================
LISTING         L-LPP-Port-NUM                    2400 LINKAGE           2408   2489
LISTING         L-OS-Type-CD                      2396 LINKAGE           2406   2432
LISTING         L-Src-Fn-TXT                      2394 LINKAGE           1420   2405   2437
                                                                         2437*  2438   2439
                                                                         2443   2446   2459
                                                                         2461   2463   2468
LISTING         RETURN-CODE                            PROCEDURE         2479
LISTING         WS-CD-In-DATA-DIV-BOOL            1473 WORKING-STORAGE   2533
LISTING         WS-CD-In-ENV-DIV-BOOL             1472 WORKING-STORAGE   2531
LISTING         WS-CD-In-IDENT-DIV-BOOL           1471 WORKING-STORAGE   2529
LISTING         WS-CD-In-PROC-DIV-BOOL            1474 WORKING-STORAGE   2535
LISTING         WS-Copyright-TXT                  1459 WORKING-STORAGE   2430*  2435*  3415
                                                                         3430   3573   3593
LISTING         WS-CPI-13-15-TXT                  1480 WORKING-STORAGE   2824*
LISTING         WS-CPI-16-CHR                     1481 WORKING-STORAGE   2823
LISTING         WS-CS-1-CHR                       1484 WORKING-STORAGE   2746*
LISTING         WS-CS-11-14-TXT                   1487 WORKING-STORAGE   2748   2749*
LISTING         WS-CS-15-CHR                      1488 WORKING-STORAGE   2751*
LISTING         WS-CS-2-14-TXT                    1485 WORKING-STORAGE   2747*
LISTING         WS-Curr-Char-Is-Punct-BOOL        1462 WORKING-STORAGE   2591   2599   2604
LISTING         WS-Curr-Char-Is-Quote-BOOL        1466 WORKING-STORAGE   2610
LISTING         WS-Curr-Char-Is-X-BOOL            1467 WORKING-STORAGE   2623
LISTING         WS-Curr-Char-Is-Z-BOOL            1468 WORKING-STORAGE   2636
LISTING         WS-Curr-CHR                       1461 WORKING-STORAGE   2581*  2584   2586
                                                                         2592   2600   2606
                                                                         2613
LISTING         WS-Curr-Division-TXT              1470 WORKING-STORAGE   2506*  2542   2593
                                                                         2601   2701   2817*
                                                                         2836*  2862*  2918*
                                                                         2923*
LISTING         WS-Curr-Line-NUM                  1476 WORKING-STORAGE   2505*  2565*  2724*
                                                                         2764*  3213   3234
                                                                         3244   3258   3485*
LISTING         WS-Curr-Prog-ID-TXT               1478 WORKING-STORAGE   2495*  2822*  3209
                                                                         3230   3240   3254
LISTING         WS-Curr-Section-TXT               1483 WORKING-STORAGE   2727*  2732   2841*
                                                                         2867*  2913   2914*
                                                                         3212   3233   3243
                                                                         3257
LISTING         WS-Curr-Verb-TXT                  1490 WORKING-STORAGE   2496*  2520*  2544*
                                                                         2928   2937
LISTING         WS-Delim-TXT                      1492 WORKING-STORAGE   2653*  2655   2673*
                                                                         2675   2678
LISTING         WS-Dummy-TXT                      1494 WORKING-STORAGE   2471*  2716*  2745*
                                                                         2778*  2783*  2784
                                                                         3471*
LISTING         WS-Expanded-Src-Fn-TXT            1496 WORKING-STORAGE   1416   2476*  2477C
LISTING         WS-Filename-TXT                   1498 WORKING-STORAGE   2470*  2473   2744*
                                                                         2747
LISTING         WS-Flags-TXT                      1500 WORKING-STORAGE
LISTING         WS-Formatted-DT                   1503 WORKING-STORAGE   2494*  3354   3377
                                                                         3611   3630
LISTING         WS-GI-Prog-ID-TXT                 1506 WORKING-STORAGE   3281   3287   3292*
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 100
```

```
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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References      Page: 101
===============  ==============================  ======  ===============  ==========================
LISTING         WS-GI-Token-TXT                 1507 WORKING-STORAGE   3282    3293*   3295
                                                                       3307
LISTING         WS-Group-Indicators-TXT        1505 WORKING-STORAGE   3265*
LISTING         WS-Held-Reference-TXT          1509 WORKING-STORAGE   2497*   2522    2523
                                                                       2524*   2559    2560
                                                                       2561*   3040*   3042
                                                                       3043    3044*   3081*
                                                                       3087    3088    3089*
                                                                       3095    3096    3097*
                                                                       3120*   3122    3123*
LISTING         WS-I-SUB                        1511 WORKING-STORAGE   2438*   2439    2440
                                                                       2442    2445*   2446
                                                                       2461*   2463    2464
                                                                       2465    2468    2721*
                                                                       2724    2735*   2737
                                                                       2738    2739    2742
                                                                       3266*   3300*   3312*
                                                                       3325*   3326    3328*
                                                                       3331    3333    3406*
LISTING         WS-J-SUB                        1513 WORKING-STORAGE   2462*   2466*   2468
                                                                       2736*   2740*   2742
LISTING         WS-Lines-Left-NUM              1515 WORKING-STORAGE   3267*   3276    3290
                                                                       3342    3396*   3407
                                                                       3451    3498    3502
                                                                       3529*   3563    3645*
                                                                       3652    3661    3668
                                                                       3677    3690
LISTING         WS-Lines-Per-Page-Env-TXT      1519 WORKING-STORAGE   2451*   2455*   2482
                                                                       2483
LISTING         WS-Lines-Per-Page-NUM          1517 WORKING-STORAGE   2484*   2487*   2489*
                                                                       2492    3396    3645
LISTING         WS-Main-Module-Name-TXT        1521 WORKING-STORAGE   2443*   2447*   2723
                                                                       3473
LISTING         WS-Next-Char-Is-Quote-BOOL     1524 WORKING-STORAGE   2623    2636
LISTING         WS-Next-CHR                    1523 WORKING-STORAGE   2583*   2626    2639
LISTING         WS-OS-Type-FILLER-TXT          1526 WORKING-STORAGE   1532
LISTING         WS-OS-Type-TXT                 1533 WORKING-STORAGE   2432
LISTING         WS-OS-Types-TXT                1532 WORKING-STORAGE
LISTING         WS-Page-No-TXT                 1538 WORKING-STORAGE   3348C   3363    3386
                                                                       3417    3432    3575
                                                                       3595    3605C   3619
                                                                       3638
LISTING         WS-Page-NUM                    1536 WORKING-STORAGE   2428*   3344*   3346
                                                                       3564    3601*   3603
LISTING         WS-PN-Literal-TXT             1539 WORKING-STORAGE   3345*   3602*
LISTING         WS-PN-Page-NUM                1540 WORKING-STORAGE   3346*   3347C   3603*
                                                                       3604C
LISTING         WS-Program-Path-TXT           1542 WORKING-STORAGE   2459*   2460C   3357
                                                                       3380    3614    3633
LISTING         WS-Reserved-Word-Table-TXT    2299 WORKING-STORAGE
LISTING         WS-Reserved-Word-TXT          2300 WORKING-STORAGE   2688
LISTING         WS-Reserved-Words-TXT         1544 WORKING-STORAGE   2299
LISTING         WS-RS-Duplicate-CHR           2308 WORKING-STORAGE   3268*   3283*   3298*
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                         2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function    Defn   Where Defined   References      Page: 102
===============  ===============================  ======  ===============  ========================
                                                                         3309     3310*
LISTING          WS-RS-In-Copybook-BOOL           2311 WORKING-STORAGE   2730*    3479*
LISTING          WS-RS-In-Main-Module-BOOL        2310 WORKING-STORAGE   2725*    2763     3474*
                                                                         3484
LISTING          WS-RS-In-Which-Pgm-CHR           2309 WORKING-STORAGE
LISTING          WS-RS-Last-Token-Ended-Sent-CHR  2312 WORKING-STORAGE   2554*    2700
LISTING          WS-RS-Processing-PICTURE-CHR     2313 WORKING-STORAGE   2649     2663*    2872*
LISTING          WS-RS-Token-Ended-Sentence-CHR   2314 WORKING-STORAGE   2541     2553     2555*
                                                                         2588*    2617*    2630*
                                                                         2643*    2656*    2676*
LISTING          WS-RS-Verb-Has-Been-Found-CHR    2315 WORKING-STORAGE   2507*    2692*    2814*
LISTING          WS-Runtime-Switches              2307 WORKING-STORAGE
LISTING          WS-RW-IDX                        2303 WORKING-STORAGE   2689     2690
LISTING          WS-RW-Type-CD                    2304 WORKING-STORAGE   2690
LISTING          WS-RW-Word-TXT                   2305 WORKING-STORAGE   2302     2689
LISTING          WS-Saved-Section-TXT             2317 WORKING-STORAGE   2726     2727     2731
                                                                         2732*
LISTING          WS-SDL-Line-NUM                  2324 WORKING-STORAGE   3489*
LISTING          WS-SDL-Statement-TXT             2326 WORKING-STORAGE   3490*    3522*    3552
                                                                         3556     3558     3654
                                                                         3658*    3670     3674*
                                                                         3679     3683*    3687*
LISTING          WS-Src-Dashes-TXT                2319 WORKING-STORAGE   3622     3641
LISTING          WS-Src-Detail-Line-TXT           2323 WORKING-STORAGE   3449*    3488*    3496*
                                                                         3500*    3505*    3509*
                                                                         3513*    3520*    3532*
                                                                         3536*    3540*    3650
                                                                         3655     3657*    3659
                                                                         3666     3671     3673*
                                                                         3675     3680     3682*
                                                                         3684     3686*    3688
                                                                         3693*
LISTING          WS-Src-Hold-TXT                  2328 WORKING-STORAGE   3654*    3658     3670*
                                                                         3674     3679*    3683
                                                                         3687
LISTING          WS-Src-Line-NUM                  2330 WORKING-STORAGE   3446*    3475     3487*
                                                                         3489
LISTING          WS-Src-Lines-NUM                 2332 WORKING-STORAGE   3550*    3553*    3557*
                                                                         3559*    3563     3566
                                                                         3580     3648     3664
LISTING          WS-Src-SUB                       2334 WORKING-STORAGE   2503*    2556     2557
                                                                         2576*    2580     2582
                                                                         2585*    2594*    2605*
                                                                         2611*    2615*    2616
                                                                         2618*    2624*    2628*
                                                                         2629     2631*    2637*
                                                                         2641*    2642     2644*
                                                                         2654*    2657*    2674*
                                                                         2679     2754*    2759*
                                                                         2761*
LISTING          WS-Suppress-FF-CHR               1501 WORKING-STORAGE   2429*    3277*    3419
                                                                         3434
LISTING          WS-Tally-QTY                     2336 WORKING-STORAGE   2793*    2795*    2796
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                      2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function  Defn   Where Defined   References     Page: 103
==============  ==============================  ======  ===============  ========================
                                                                       2800*    2801
LISTING         WS-Temp-10-Chars-TXT            2338 WORKING-STORAGE   2714*    2718     2719*
                                                                       2721     3469*
LISTING         WS-Temp-256-Chars-TXT           2348 WORKING-STORAGE   2478C    2715*    2722
                                                                       2734     2737     2742
                                                                       3470*    3472
LISTING         WS-Temp-32-Chars-1-TXT          2340 WORKING-STORAGE   2769*    2772     2779
LISTING         WS-Temp-32-Chars-2-TXT          2342 WORKING-STORAGE   2776*    2781*    2787
                                                                       2788*    2804
LISTING         WS-Temp-32-Chars-3-TXT          2344 WORKING-STORAGE   2777*    2782*    2790
                                                                       2791*    2804
LISTING         WS-Temp-65-Chars-TXT            2346 WORKING-STORAGE   3492*    3499     3504
                                                                       3508     3512     3524*
                                                                       3528     3531     3535
                                                                       3539
LISTING         WS-Today-DT                     2350 WORKING-STORAGE   2493*    2494
LISTING         WS-Token-Curr-TXT               2352 WORKING-STORAGE   2513     2517*    2586*
                                                                       2595*    2606*    2614*
                                                                       2627*    2640*    2652*
                                                                       2659     2672*    2682
                                                                       2684*    2702*    2769
                                                                       2816     2822     2835
                                                                       2840     2861     2866
                                                                       2870     2904     2922
                                                                       3211     3232     3242
                                                                       3256
LISTING         WS-Token-Curr-Uc-TXT            2354 WORKING-STORAGE   2514*    2517     2520
                                                                       2539     2916     3210
                                                                       3231     3241     3255
LISTING         WS-Token-Prev-TXT               2356 WORKING-STORAGE   2521*    2539*    2543*
                                                                       2602*    2817     2820
                                                                       2821*    2836     2841
                                                                       2845     2862     2867
                                                                       2876     2877*    2881
                                                                       2884*    2887*    2890*
                                                                       2893*    2896*    2899*
                                                                       2902*    2917     2923
                                                                       2927     2931*    2984
                                                                       2987*    2994     3005
                                                                       3008*    3017     3028
                                                                       3037     3065     3078
                                                                       3082*    3085*    3093*
                                                                       3101*    3108     3117
                                                                       3133     3136*    3139*
                                                                       3146     3155     3166
                                                                       3181     3184*    3191
LISTING         WS-Token-Search-TXT             2358 WORKING-STORAGE   2682*    2683     2689
LISTING         WS-Token-Type-CD                2360 WORKING-STORAGE   2587*    2596*    2607*
                                                                       2660*    2664*    2685*
                                                                       2690*    2703*
LISTING         WS-TT-Token-Is-Argtype-BOOL     2361 WORKING-STORAGE   2811     2831     2857
LISTING         WS-TT-Token-Is-EOF-BOOL         2362 WORKING-STORAGE   2510     2564*
LISTING         WS-TT-Token-Is-Function-BOOL    2363 WORKING-STORAGE   2851
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                    2017/12/24
                                  /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 104
===============  ==============================  ======  ===============  ========================
LISTING          WS-TT-Token-Is-Identifier-BOOL   2364 WORKING-STORAGE   2697*   2844    2880
                                                                         2926    2934
LISTING          WS-TT-Token-Is-Keyword-BOOL      2365 WORKING-STORAGE   2515    2538    2815
                                                                         2834    2839    2860
                                                                         2865    2871    2921
LISTING          WS-TT-Token-Is-Lit-Alpha-BOOL    2366 WORKING-STORAGE   2620*   2646*
LISTING          WS-TT-Token-Is-Lit-Number-BOOL   2367 WORKING-STORAGE   2633*   2699    2773*
                                                                         2805*
LISTING          WS-TT-Token-Is-Reserved-Wd-BOOL  2369 WORKING-STORAGE   2516    2812*   2832*
                                                                         2858*   2875
LISTING          WS-TT-Token-Is-Verb-BOOL         2368 WORKING-STORAGE   2519    2691
LISTING          WS-Usernames-QTY                 2371 WORKING-STORAGE   2504*
LISTING          WS-Version-TXT                   2373 WORKING-STORAGE   2436*   3350    3373
                                                                         3607    3626
LISTING          WS-XDL-Def-Line-NUM              2380 WORKING-STORAGE   3304*   3321*
LISTING          WS-XDL-Prog-ID-TXT               2376 WORKING-STORAGE   3301*   3313*   3317*
LISTING          WS-XDL-Ref-Flag-CHR              2386 WORKING-STORAGE   3333*
LISTING          WS-XDL-Ref-Line-NUM              2385 WORKING-STORAGE   3331*
LISTING          WS-XDL-Reference-TXT             2384 WORKING-STORAGE
LISTING          WS-XDL-Section-TXT               2382 WORKING-STORAGE   3303*   3319*
LISTING          WS-XDL-Token-TXT                 2378 WORKING-STORAGE   3302*   3314*   3318*
LISTING          WS-Xref-Detail-Line-TXT          2375 WORKING-STORAGE   3264*   3271    3274*
                                                                         3284    3288*   3297
                                                                         3316    3336    3399
                                                                         3402    3405*
LISTING          WS-Xref-Lines-Per-Rec-NUM        2389 WORKING-STORAGE   2450*   2454*   3326
```

# 6.  STREAMIO

STREAMIO is a utility I created to assist with handling stream I/O functions.  I've used it to construct a number of useful little command-line utilities.

Usage of this subroutine is completely documented in the program comments.  The program COPY's a copybook named STREAMIOcb, the format of which is described in the program comments.

Both STREAMIO.cbl and STREAMIOcb.cpy are included in the "samples" directory of any pre-built distributions of GnuCOBOL that I have created.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Coding a GnuCOBOL subroutine

- Using the `"REPLACING"` clause on a CDF `"COPY"` statement

- Using hexadecimal alphanumeric literals

- Using the following statements:

    o `"ACCEPT FROM ENVIRONMENT"` statement

    o `"INSPECT"` statement

    o `"STRING"` statement

- Using the following built-in subroutines:

    o `"C$PARAMSIZE"` built-in system subroutine

    o `"CBL_CLOSE_FILE"` built-in system subroutine

    o `"CBL_DELETE_FILE"` built-in system subroutine

    o `"CBL_EXIT_PROC"` built-in system subroutine

    o `"CBL_OPEN_FILE"` built-in system subroutine

    o `"CBL_READ_FILE"` built-in system subroutine

    o `"CBL_WRITE_FILE"` built-in system subroutine

- Using the following intrinsic functions:

    o `"RANDOM"` intrinsic function

    o `"TRIM"` intrinsic function

First, here is the STREAMIOcb.cpy copybook:

```
        05 SCB-Handle-NUM               PIC X(4) COMP-X.
        05 SCB-Mode-CD                  PIC X(1).
           88 SCB-MODE-Input-BOOL       VALUE 'I', 'i'.
           88 SCB-MODE-Output-BOOL      VALUE 'O', 'o'.
           88 SCB-MODE-Both-BOOL        VALUE 'B', 'b'.
        05 SCB-Function-CD              PIC X(2).
           88 SCB-Func-CLOSE-BOOL       VALUE 'C ', 'c '.
           88 SCB-Func-DELETE-BOOL      VALUE 'D ', 'd '.
           88 SCB-Func-OPEN-BOOL        VALUE 'O ', 'o '.
           88 SCB-Func-READ-BOOL        VALUE 'R ', 'r '.
           88 SCB-Func-READ-Delim-BOOL  VALUE 'RD', 'rd',
                                              'rD', 'Rd'.
           88 SCB-Func-WRITE-BOOL       VALUE 'W ', 'w '.
           88 SCB-Func-WRITE-Delim-BOOL VALUE 'WD', 'wd',
                                              'wD', 'Wd'.
        05 SCB-Delimiter-Mode-CD        PIC X(1).
           88 SCB-DELIM-Unix-BOOL       VALUE 'U', 'u'.
           88 SCB-DELIM-Windows-BOOL    VALUE 'W', 'w'.
        05 SCB-Offset-NUM               PIC X(8) COMP-X.
        05 SCB-Error-Routine-PTR        USAGE PROGRAM-POINTER.
        05 SCB-Error-Routine-NUM REDEFINES SCB-Error-Routine-PTR
                                        USAGE BINARY-LONG.
        05 SCB-Return-CD                USAGE BINARY-LONG.
        05 SCB-Filename-TXT             PIC X(256).
```

The program source and cross-reference listing, produced using the GnuCOBOL Interactive Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the next page.

Line    Statement                                                              Page: 1
====== =========================================================================================
     1          >>SOURCE FORMAT IS FIXED
     2           IDENTIFICATION DIVISION.
     3           PROGRAM-ID. STREAMIO.
     4          *>****************************************************************
     5          *> Author: Gary L. Cutler                                      **
     6          *>                                                             **
     7          *> This routine centralizes all bytestream file I/O  functions **
     8          *> into one routine.  The manner in which this routine is      **
     9          *> CALLed is as follows:                                       **
    10          *>                                                             **
    11          *>          CALL "STREAMIO" USING control-block [ , arg2 ]      **
    12          *>                                                             **
    13          *> where 'control-block' is defined by the "STREAMIOcb.cpy"     **
    14          *> copybook and 'arg2' will vary, depending upon the function   **
    15          *> specified in the control block.                             **
    16          *>                                                             **
    17          *> The STREAMIO routine has an advantage over the various      **
    18          *> "CBL_xxxxxx_FILE" routines in that:                          **
    19          *>                                                             **
    20          *> 1. It automates the establishment and on-going adjustment of **
    21          *>    the file-offset value in such a way as to simplify the    **
    22          *>    sequential processing of a bytestream file (you may still **
    23          *>    specify a file-offset manually on each read or write, if  **
    24          *>    you wish)                                                 **
    25          *>                                                             **
    26          *> 2. It auto-detects the size of the I/O buffer you supply to  **
    27          *>    STREAMIO, using that as the byte-count of all read and    **
    28          *>    write operations.                                        **
    29          *>                                                             **
    30          *> 3. Not only does it support the raw input and output of data **
    31          *>    that the CBL_READ_FILE and CBL_WRITE_FILE routines do,    **
    32          *>    but on input it is also capable of delivering just a      **
    33          *>    single newline-delimited or carriage-return/newline de-   **
    34          *>    limited record to the caller.                            **
    35          *>                                                             **
    36          *> 4. On output, STREAMIO can optionally append either a new-   **
    37          *>    line or carriage-return/newline sequence (your choice) to **
    38          *>    the end of every record it writes.                       **
    39          *>                                                             **
    40          *> 5. STREAMIO can automatically generate filenames for output  **
    41          *>    files if you wish, simplifying the process of creating    **
    42          *>    scratch or work files.                                   **
    43          *>                                                             **
    44          *> 6. The STREAMIO routine also allows you to (optionally) re-  **
    45          *>    gister a general error-handling routine to be given con-  **
    46          *>    trol should a fatal error be detected with STREAMIO.      **
    47          *>                                                             **
    48          *>    This routine can be "turned on" and "turned off" at will. **
    49          *>                                                             **

====================================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                            Page: 1

```
GNU COBOL 2.1 23NOV2013 Source Listing                                       2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                Page: 2
======  ==================================================================================
   50         *> The control block format is as follows.  This structure must **
   51         *> be defined under an 01-level data item of your creation and   **
   52         *> should be INITIALIZEd before any items within it are used.     **
   53         *>                                                                **
   54         *> 05 SCB-Handle-NUM                 PIC X(4) COMP-X.             **
   55         *> 05 SCB-Mode-CD                    PIC X(1).                    **
   56         *>    88 SCB-Mode-Input-BOOL         VALUE 'I', 'i'.              **
   57         *>    88 SCB-Mode-Output-BOOL        VALUE 'O', 'o'.              **
   58         *>    88 SCB-Mode-Both-BOOL          VALUE 'B', 'b'.              **
   59         *> 05 SCB-Function-CD                PIC X(2).                    **
   60         *>    88 SCB-Func-CLOSE-BOOL         VALUE 'C ', 'c '.            **
   61         *>    88 SCB-Func-DELETE-BOOL        VALUE 'D ', 'd '.            **
   62         *>    88 SCB-Func-OPEN-BOOL          VALUE 'O ', 'o '.            **
   63         *>    88 SCB-Func-READ-BOOL          VALUE 'R ', 'r '.            **
   64         *>    88 SCB-Func-READ-Delim-BOOL    VALUE 'RD', 'rd',            **
   65         *>                                         'rD', 'Rd'.           **
   66         *>    88 SCB-Func-WRITE-BOOL         VALUE 'W ', 'w '.            **
   67         *>    88 SCB-Func-WRITE-Delim-BOOL   VALUE 'WD', 'wd',            **
   68         *>                                         'wD', 'Wd'.           **
   69         *> 05 SCB-Delimiter-Mode-CD          PIC X(1).                    **
   70         *>    88 SCB-Delim-Unix-BOOL         VALUE 'U', 'u'.              **
   71         *>    88 SCB-Delim-Windows-BOOL      VALUE 'W', 'w'.              **
   72         *> 05 SCB-Offset-NUM                 PIC X(8) COMP-X.             **
   73         *> 05 SCB-Error-Routine-PTR          USAGE PROGRAM-POINTER.       **
   74         *> 05 SCB-Error-Routine-NUM REDEFINES SCB-Error-Routine-PTR       **
   75         *>                                   USAGE BINARY-LONG.           **
   76         *> 05 SCB-Return-CD                  USAGE BINARY-LONG.           **
   77         *> 05 SCB-Filename-TXT               PIC X(256).                  **
   78         *>                                                                **
   79         *> Such a structure is defined for your use using the copybook   **
   80         *> "STREAMIOcb.cpy" (you may also define your own, provided it    **
   81         *> conforms to the above layout).                                 **
   82         *>---------------------------------------------------------------**
   83         *> SCB-Handle-NUM                                                 **
   84         *>---------------------------------------------------------------**
   85         *>                                                                **
   86         *> Serves as a file handle to the file once it has been opened   **
   87         *> (via the "SCB-Func-OPEN-BOOL" function).                       **
   88         *>                                                                **
   89         *>---------------------------------------------------------------**
   90         *> SCB-Mode-CD                                                    **
   91         *>---------------------------------------------------------------**
   92         *>                                                                **
   93         *> Prior to calling "STREAMIO" for the first time for a file,    **
   94         *> the appropriate subordinate level-88 must be set to TRUE to   **
   95         *> select an I/O mode.  You may also simply move one of the      **
   96         *> string values listed on the level-88 items to "SCB-Mode-CD". **
   97         *>                                                                **
   98         *>---------------------------------------------------------------**

======  ==================================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                          2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                 Page: 3
====== ====================================================================================
    99        *> SCB-Function-CD                                        **
   100        *>-----------------------------------------------------------**
   101        *>                                                         **
   102        *> The appropriate subordinate level-88 must be set to TRUE to **
   103        *> select a function you'd like to execute against a file.  You **
   104        *> may also simply move one of the string values listed on the **
   105        *> level-88 items to "SCB-Function-CD".                    **
   106        *>                                                         **
   107        *> Available functions are as follows:                    **
   108        *>                                                         **
   109        *> SCB-Func-OPEN-BOOL                                      **
   110        *>                                                         **
   111        *>     This must be the function specified the first time you **
   112        *>     call STREAMIO for any given file.  It opens the file & **
   113        *>     makes it available for use according to the         **
   114        *>     "SCB-Mode-CD" specification.                        **
   115        *>                                                         **
   116        *>     The filename being opened must be specified in the  **
   117        *>     "SCB-Filename-TXT" field.                           **
   118        *>                                                         **
   119        *>     The SCB-Offset-NUM field will be initialized to ZERO. **
   120        *>                                                         **
   121        *>     If "arg2" is specified in conjunction with this funct- **
   122        *>     ion, it will be ignored.                            **
   123        *>                                                         **
   124        *> SCB-Func-CLOSE-BOOL                                     **
   125        *>                                                         **
   126        *>     This function should be the one specified the LAST time **
   127        *>     you call STREAMIO against a specific file.  After this **
   128        *>     function has been executed, you'll have to re-open the **
   129        *>     file if you wish to use it with STREAMIO again.     **
   130        *>                                                         **
   131        *>     The SCB-Handle-NUM item will be reset to ZERO.      **
   132        *>                                                         **
   133        *>     If "arg2" is specified in conjunction with this funct- **
   134        *>     ion, it will be ignored.                            **
   135        *>                                                         **
   136        *> SCB-Func-DELETE-BOOL                                    **
   137        *>                                                         **
   138        *>     This function will delete the file specified in the **
   139        *>     control block (see SCB-Filename-TXT).               **
   140        *>                                                         **
   141        *>     This function should not be performed against a file **
   142        *>     that is open.                                       **
   143        *>                                                         **
   144        *>     If "arg2" is specified in conjunction with this funct- **
   145        *>     ion, it will be ignored.                            **
   146        *>                                                         **
   147        *> SCB-Func-READ-BOOL                                      **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                            C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                           Page: 4
======  =============================================================================
   148      *>                                                       **
   149      *>      This function invokes a standard CBL_READ_FILE against **
   150      *>      the file specified in the control block (see     **
   151      *>      SCB-Filename-TXT).                                **
   152      *>                                                       **
   153      *>      The buffer into which you wish to read data must be **
   154      *>      supplied as "arg2".  The size of that buffer, in bytes, **
   155      *>      will define the "byte-count" value supplied to the **
   156      *>      CBL_READ_FILE subroutine.  The buffer data item will be **
   157      *>      set to SPACES before the read takes place.       **
   158      *>                                                       **
   159      *>      If the file-offset value (SCB-Offset-NUM) is greater **
   160      *>      than the size of the file, a "no more data" return code **
   161      *>      (01) will be passed back in SCB-Return-CD and the **
   162      *>      buffer will have been set to SPACES.             **
   163      *>                                                       **
   164      *>      At the conclusion of a successful SCB-Func-READ-BOOL, **
   165      *>      the value of SCB-Offset-NUM will have been automati- **
   166      *>      cally incremented by the byte-count size of "arg2". **
   167      *>                                                       **
   168      *> SCB-Func-WRITE-BOOL                                   **
   169      *>                                                       **
   170      *>      This function invokes a standard CBL_WRITE_FILE against **
   171      *>      the file specified in the control block (see     **
   172      *>      SCB-Filename-TXT).                                **
   173      *>                                                       **
   174      *>      The buffer from which data will be written to the file **
   175      *>      must be supplied as "arg2".  The size of that buffer, **
   176      *>      in bytes, will define the "byte-count" value supplied **
   177      *>      CBL_WRITE_FILE subroutine.  The buffer data will be **
   178      *>      written to the file-offset position defined by the **
   179      *>      SCB-Offset-NUM value.  You may specify "arg2" either **
   180      *>      as an actual alphanumeric data item or as an alpha- **
   181      *>      numeric literal.                                 **
   182      *>                                                       **
   183      *>      If the file-offset value (SCB-Offset-NUM) is greater **
   184      *>      than the size of the file, a "no more data" return code **
   185      *>      will be passed back in SCB-Return-CD and the buffer **
   186      *>      will have been set to SPACES.                    **
   187      *>                                                       **
   188      *>      At the conclusion of a successful SCB-Func-WRITE-BOOL **
   189      *>      operation, the value of SCB-Offset-NUM will have been **
   190      *>      automatically incremented by the byte-count size of **
   191      *>      "arg2".                                          **
   192      *>                                                       **
   193      *> SCB-Func-READ-Delim-BOOL                              **
   194      *>                                                       **
   195      *>      SCB-Func-READ-Delim-BOOL bahaves like the SCB-FUNC- **
   196      *>      READ function, with the following behavioral dif- **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                             Page: 5
======  ===============================================================================
  197      *>       ferences:                                         **
  198      *>                                                          **
  199      *>       1. When data is read from the file, only that data read **
  200      *>          up to BUT NOT INCLUDING an end-of-line delimiter    **
  201      *>          sequence (either a LF or CRLF) will be retained in   **
  202      *>          the buffer - the remainder of the buffer from the    **
  203      *>          end-of-line sequence onward will be reset to SPACES. **
  204      *>          The file-offset value (SCB-Offset-NUM) will be in-    **
  205      *>          cremented ONLY by the amount of data transferred up   **
  206      *>          to AND INCLUDING the end-of-line sequence.            **
  207      *>                                                          **
  208      *>       2. When data is read from the file and an end-of-line    **
  209      *>          delimiter sequence (either a LF or a CRLF) cannot be **
  210      *>          found within the buffer, the assumption is made that **
  211      *>          the record is too long to fit within the buffer.  In **
  212      *>          these instances, an SCB-Return-CD value of 02 will    **
  213      *>          be returned and the SCB-Offset-NUM value will be      **
  214      *>          incremented past the next end-of-line sequence in     **
  215      *>          the file (this will involve at least one additional   **
  216      *>          call to CBL_READ_FILE to locate that eol sequence,    **
  217      *>          but any additional such reads will be done internal-  **
  218      *>          ly to STREAMIO and will be entirely transparent to    **
  219      *>          the caller of STREAMIO.                               **
  220      *>                                                          **
  221      *>       DO NOT USE the Streamio-READ-Delim function if the       **
  222      *>       possibility exists that linefeed (X"0A") or carriage-    **
  223      *>       return (X"0D") characters could exist as actual data     **
  224      *>       characters in the file.                                  **
  225      *>                                                          **
  226      *> SCB-Func-WRITE-Delim-BOOL                                      **
  227      *>                                                          **
  228      *>       SCB-Func-WRITE-Delim-BOOL acts like the Streamio-        **
  229      *>       FUNC-WRITE function, with the following difference:      **
  230      *>                                                          **
  231      *>       After the specified data is written to the file, an     **
  232      *>       end-of-line sequence will also be written to the file.   **
  233      *>       The file-offset value (SCB-Value) will be incremented    **
  234      *>       by the byte-count size of the data PLUS the size of the **
  235      *>       end-of-line sequence.  One of two possible end-of-line   **
  236      *>       sequences must be specified using the value of SCB-      **
  237      *>       Delimter-Mode.                                           **
  238      *>                                                          **
  239      *>------------------------------------------------------------**
  240      *> SCB-Delimiter-Mode-CD                                          **
  241      *>------------------------------------------------------------**
  242      *>                                                          **
  243      *> This data item is needed only when issuing the Streamio-      **
  244      *> FUNC-WRITE-Delim function.  In those circumstances, this      **
  245      *> item defines what end-of-line delimiter sequence is to be     **
======================================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                           Page: 6
====== =================================================================================
   246       *> written:                                          **
   247       *>                                                    **
   248       *> If SCB-Delim-Unix-BOOL is true, a linefeed character will   **
   249       *> be written.                                        **
   250       *>                                                    **
   251       *> If SCB-Delim-Windows-BOOL is true, a carriage-return and    **
   252       *> linefeed sequence will be written.                 **
   253       *>                                                    **
   254       *>------------------------------------------------------------**
   255       *> SCB-Offset-NUM                                     **
   256       *>------------------------------------------------------------**
   257       *>                                                    **
   258       *> This data item specifies the next relative byte number with- **
   259       *> in the file where the next read or write will start.    **
   260       *>                                                    **
   261       *> SCB-Offset-NUM is automatically set to 0 (the first byte)   **
   262       *> when the file is opened, and is automatically incremented as **
   263       *> the file is read or written via STREAMIO.          **
   264       *>                                                    **
   265       *> You may also manually set this value as desired before any  **
   266       *> call to STREAMIO.                                  **
   267       *>                                                    **
   268       *>------------------------------------------------------------**
   269       *> SCB-Error-Routine-PTR                              **
   270       *>------------------------------------------------------------**
   271       *>                                                    **
   272       *> To specify a general error-handling routine for handling    **
   273       *> STREAMIO failures, Create the routine and define an entry-   **
   274       *> name for it via the ENTRY statement.  Then use the following **
   275       *> to set that routine up as the error handler:       **
   276       *>                                                    **
   277       *>    SET SCB-Error-Routine-PTR TO ENTRY "entry-name"  **
   278       *>                                                    **
   279       *> To "turn off" the error-routine:                   **
   280       *>                                                    **
   281       *>    SET SCB-Error-Routine-PTR TO NULL                **
   282       *>                                                    **
   283       *> If a fatal error occurs (any error not marked with a ">" in  **
   284       *> the SCB-Return-CD discussion), the error routine you spe-    **
   285       *> cified (if any) will be set up as an exit routine via the    **
   286       *> CBL_EXIT_PROC subroutine; the STREAMIO routine will then is- **
   287       *> sue a STOP RUN to intentionally trigger your error routine.  **
   288       *> You will not be able to recover your program once your error **
   289       *> routine triggers.  If you wish to be able to recover from    **
   290       *> fatal STREAMIO errors, you should NOT use the SCB-Error-     **
   291       *> Routine feature but instead you should explicitly test the   **
   292       *> SCB-Return-CD value after every call to STREAMIO.  **
   293       *>                                                    **
   294       *> A default error routine is defined by the "STREAMIOError.cpy"**

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```

Line    Statement                                                           Page: 7
====== =========================================================================================
   295        *> copybook.                                              **
   296        *>                                                        **
   297        *>-----------------------------------------------------------**
   298        *> SCB-Return-CD                                          **
   299        *>-----------------------------------------------------------**
   300        *>                                                        **
   301        *> The following are the possible SCB-Return-CD values.  The    **
   302        *> ones marked with a ">" will NOT trigger an error-routine, if **
   303        *> one is currently registered via SCB-Error-Routine-PTR.       **
   304        *>                                                        **
   305        *>   12 I/O error writing to file                         **
   306        *>   11 File does not exist                               **
   307        *>   10 File already OPEN or already CLOSEd               **
   308        *> > 02 READ-Delim was truncated                          **
   309        *> > 01 No more data is available from the current        **
   310        *>      SCB-Offset-NUM                                    **
   311        *> > 00 OK - the operation was successful                 **
   312        *>   -1 Invalid SCB-Function-CD                           **
   313        *>   -2 Invalid SCB-Mode-CD                               **
   314        *>   -3 CBL_xxxxx_FILE routine rejected operation         **
   315        *>   -4 Invalid delimiter mode specified (Not U/W)        **
   316        *>                                                        **
   317        *>-----------------------------------------------------------**
   318        *> SCB-Filename-TXT                                       **
   319        *>-----------------------------------------------------------**
   320        *>                                                        **
   321        *> This is the name of the file you wish to access.       **
   322        *>                                                        **
   323        *> If you are planning on reading the file, the file MUST exist **
   324        *> at the time the SCB-Func-OPEN-BOOL is executed.        **
   325        *>                                                        **
   326        *> If you are planning on writing to the file, the file need    **
   327        *> exist when the SCB-Func-OPEN-BOOL is issued.           **
   328        *>                                                        **
   329        *> In general, the contents of SCB-Filename-TXT should re- **
   330        *> flect the complete path to the file as well as the name of   **
   331        *> the file itself, unless the file is contained in whatever    **
   332        *> directory is current at the time the SCB-Func-OPEN-BOOL is   **
   333        *> executed.                                              **
   334        *>                                                        **
   335        *> The following special values may be used for           **
   336        *> SCB-Filename-TXT:                                      **
   337        *>                                                        **
   338        *> SPACES If the filename is SPACES, a filename will be created **
   339        *>        automatically for you in whatever directory is de-    **
   340        *>        fined by the TEMP environment variable.  If there IS   **
   341        *>        no TEMP variable defined, the "/tmp" folder will be    **
   342        *>        assumed.  The filename will be STREAMIO-nnnnnnnn.dat   **
   343        *>        where "nnnnnnnn" is a random number.            **

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```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                Page: 8
======  ==================================================================================
  344      *>                                                          **
  345      *> .      If you specify only a dot (period) as the filename,  **
  346      *>        the behavior will be the same as with a value of   **
  347      *>        SPACES except there will be no ".dat" at the end of **
  348      *>        the generated filename.                            **
  349      *>                                                          **
  350      *> .ext   If you specify a filename extension prefixed with a **
  351      *>        dot (period), the behavior will be the same as if a **
  352      *>        value of SPACES were specified, except that the given **
  353      *>        extension will be used instead of ".dat".  Note that **
  354      *>        if you are using a Unix/Cygwin implementation of    **
  355      *>        OpenCOBOL and you'd like to specify a hidden file in **
  356      *>        the current directory as the SCB-Filename-TXT, you  **
  357      *>        MUST code the filename as "./.xxxxx" to avoid having **
  358      *>        it treated as this special name.                    **
  359      *>                                                          **
  360      *>****************************************************************
  361        ENVIRONMENT DIVISION.
  362        CONFIGURATION SECTION.
  363        REPOSITORY.
  364            FUNCTION ALL INTRINSIC.
  365        DATA DIVISION.
  366        WORKING-STORAGE SECTION.
  367        01  WS-Access-Mode-CD                 PIC X(1) COMP-X.
  368        01  WS-Arg-Length-NUM                 PIC X(4) COMP-X.
  369        01  WS-Buffer-TXT                     PIC X(256).
  370        01  WS-Delim-Buffer-TXT               PIC X(2).
  371        01  WS-Env-Temp-TXT                   PIC X(256).
  372        01  WS-Slash-CHR                      PIC X(1).
  373        01  WS-Tally-NUM                      USAGE BINARY-LONG.
  374        01  WS-8-Digit-NUM                    PIC 9(8).
  375        01  WS-256-Byte-TXT                   PIC X(256).
  376        LINKAGE SECTION.
  377        01  L-StreamIO-Control-Block-TXT.
  378            COPY STREAMIOcb
  379                REPLACING LEADING ==SCB-== BY ==L-SCB-==.
        05 L-SCB-Handle-NUM PIC X(4) COMP-X.
        05 L-SCB-Mode-CD PIC X(1).
        88 L-SCB-MODE-Input-BOOL VALUE 'I' 'i'.
        88 L-SCB-MODE-Output-BOOL VALUE 'O' 'o'.
        88 L-SCB-MODE-Both-BOOL VALUE 'B' 'b'.
        05 L-SCB-Function-CD PIC X(2).
        88 L-SCB-Func-CLOSE-BOOL VALUE 'C ' 'c '.
        88 L-SCB-Func-DELETE-BOOL VALUE 'D ' 'd '.
        88 L-SCB-Func-OPEN-BOOL VALUE 'O ' 'o '.
        88 L-SCB-Func-READ-BOOL VALUE 'R ' 'r '.
        88 L-SCB-Func-READ-Delim-BOOL VALUE 'RD' 'rd'
        'rD' 'Rd'.
        88 L-SCB-Func-WRITE-BOOL VALUE 'W ' 'w '.


==================================================================================================
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```

====== ============================================================================================
        88 L-SCB-Func-WRITE-Delim-BOOL VALUE 'WD' 'wd'
        'wD' 'Wd'.
        05 L-SCB-Delimiter-Mode-CD PIC X(1).
        88 L-SCB-DELIM-Unix-BOOL VALUE 'U' 'u'.
        88 L-SCB-DELIM-Windows-BOOL VALUE 'W' 'w'.
        05 L-SCB-Offset-NUM PIC X(8) COMP-X.
        05 L-SCB-Error-Routine-PTR USAGE PROGRAM-POINTER.
        05 L-SCB-Error-Routine-NUM REDEFINES L-SCB-Error-Routine-PTR
        USAGE BINARY-LONG.
        05 L-SCB-Return-CD USAGE BINARY-LONG.
        05 L-SCB-Filename-TXT PIC X(256).
   380      01  L-Arg2-TXT                          PIC X ANY LENGTH.
   381      PROCEDURE DIVISION USING L-StreamIO-Control-Block-TXT,
   382                               L-Arg2-TXT.
   383      000-Main SECTION.
   384          MOVE 00 TO L-SCB-Return-CD
   385          EVALUATE TRUE
   386              WHEN L-SCB-Func-CLOSE-BOOL
   387                  PERFORM 030-Validate-Handle-NonZero
   388                  PERFORM 200-CLOSE
   389              WHEN L-SCB-Func-DELETE-BOOL
   390                  CALL "CBL_DELETE_FILE" USING L-SCB-Filename-TXT
   391              WHEN L-SCB-Func-OPEN-BOOL
   392                  PERFORM 020-Validate-Handle-Zero
   393                  PERFORM 100-OPEN
   394              WHEN L-SCB-Func-READ-BOOL
   395                  PERFORM 030-Validate-Handle-NonZero
   396                  PERFORM 400-READ
   397              WHEN L-SCB-Func-READ-Delim-BOOL
   398                  PERFORM 030-Validate-Handle-NonZero
   399                  PERFORM 500-READ-Delim
   400              WHEN L-SCB-Func-WRITE-BOOL
   401                  PERFORM 030-Validate-Handle-NonZero
   402                  PERFORM 300-WRITE
   403              WHEN L-SCB-Func-WRITE-Delim-BOOL
   404                  EVALUATE TRUE
   405                      WHEN L-SCB-Delim-Unix-BOOL
   406                          PERFORM 030-Validate-Handle-NonZero
   407                          PERFORM 300-WRITE
   408                          MOVE 1 TO WS-Arg-Length-NUM
   409                          MOVE X"0A" TO WS-Delim-Buffer-TXT
   410                      WHEN L-SCB-Delim-Windows-BOOL
   411                          PERFORM 030-Validate-Handle-NonZero
   412                          PERFORM 300-WRITE
   413                          MOVE 2 TO WS-Arg-Length-NUM
   414                          MOVE X"0D0A" TO WS-Delim-Buffer-TXT
   415                      WHEN OTHER
   416                          MOVE -4 TO L-SCB-Return-CD
   417                          PERFORM 099-ERROR-Return

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GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement                                                                Page: 10
====== ===============================================================================
   418                   END-EVALUATE
   419                   CALL "CBL_WRITE_FILE" USING L-SCB-Handle-NUM
   420                                             L-SCB-Offset-NUM
   421                                             WS-Arg-Length-NUM
   422                                             0
   423                                             WS-Delim-Buffer-TXT
   424                 PERFORM 040-Check-WRITE-SCB-Return-CD
   425                 ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   426              WHEN OTHER
   427                 MOVE -1 TO L-SCB-Return-CD
   428                 PERFORM 099-ERROR-Return
   429           END-EVALUATE
   430           GOBACK
   431               .
   432       020-Validate-Handle-Zero SECTION.
   433           IF L-SCB-Handle-NUM NOT = ZERO
   434               MOVE 10 TO L-SCB-Return-CD
   435               PERFORM 099-ERROR-Return
   436           END-IF
   437               .
   438       030-Validate-Handle-NonZero SECTION.
   439           IF L-SCB-Handle-NUM = ZERO
   440               MOVE 10 TO L-SCB-Return-CD
   441               PERFORM 099-ERROR-Return
   442           END-IF
   443               .
   444       040-Check-WRITE-SCB-Return-CD SECTION.
   445           IF RETURN-CODE < 0
   446               MOVE -3 TO L-SCB-Return-CD
   447               PERFORM 099-ERROR-Return
   448           END-IF
   449           IF RETURN-CODE = 30
   450               MOVE 12 TO L-SCB-Return-CD
   451               PERFORM 099-ERROR-Return
   452           END-IF
   453           MOVE 00 TO L-SCB-Return-CD
   454               .
   455       050-Check-READ-SCB-Return-CD SECTION.
   456           IF RETURN-CODE < 0
   457               MOVE -3 TO L-SCB-Return-CD
   458               PERFORM 099-ERROR-Return
   459           END-IF
   460           IF RETURN-CODE = 10
   461               MOVE 01 TO L-SCB-Return-CD
   462               GOBACK
   463           END-IF
   464           MOVE 00 TO L-SCB-Return-CD
   465               .
   466       060-Identify-TEMP SECTION.


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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement                                                              Page: 11
====== ===============================================================================
   467           ACCEPT WS-Env-Temp-TXT FROM ENVIRONMENT "TEMP"
   468           EVALUATE TRUE
   469               WHEN WS-Env-Temp-TXT (1:1) = "/"
   470                   MOVE "/"   TO WS-Slash-CHR
   471               WHEN WS-Env-Temp-TXT (2:1) = ":"
   472                   MOVE "\"   TO WS-Slash-CHR
   473               WHEN OTHER
   474                   MOVE "/tmp" TO WS-Env-Temp-TXT
   475                   MOVE "/"   TO WS-Slash-CHR
   476           END-EVALUATE
   477           .
   478       099-ERROR-Return SECTION.
   479           IF L-SCB-Error-Routine-NUM NOT = 0
   480               CALL "CBL_EXIT_PROC" USING 0, L-SCB-Error-Routine-PTR
   481               STOP RUN
   482           END-IF
   483           GOBACK
   484           .
   485       100-OPEN SECTION.
   486           IF  (L-SCB-Mode-Input-BOOL OR L-SCB-Mode-Both-BOOL)
   487           AND (L-SCB-Filename-TXT = SPACES OR LOW-VALUES)
   488               MOVE 11 TO L-SCB-Return-CD
   489               PERFORM 099-ERROR-Return
   490           END-IF
   491           EVALUATE TRUE
   492               WHEN L-SCB-Filename-TXT = SPACES OR LOW-VALUES
   493                   PERFORM 060-Identify-TEMP
   494                   MOVE SPACES TO L-SCB-Filename-TXT
   495                   COMPUTE
   496                       WS-8-Digit-NUM =
   497                       RANDOM(SECONDS-PAST-MIDNIGHT) * 100000000
   498                   END-COMPUTE
   499                   STRING
   500                       TRIM(WS-Env-Temp-TXT,TRAILING)
   501                       WS-Slash-CHR
   502                       "STREAMIO-"
   503                       WS-8-Digit-NUM
   504                       ".dat"
   505                       DELIMITED BY SIZE
   506                       INTO L-SCB-Filename-TXT
   507               WHEN L-SCB-Filename-TXT(1:1) = "."
   508                   PERFORM 060-Identify-TEMP
   509                   IF L-SCB-Filename-TXT(2:1) = SPACE
   510                       MOVE SPACES TO WS-256-Byte-TXT
   511                   ELSE
   512                       MOVE L-SCB-Filename-TXT TO WS-256-Byte-TXT
   513                   END-IF
   514                   MOVE SPACES TO L-SCB-Filename-TXT
   515                   COMPUTE WS-8-Digit-NUM =

====================================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                          2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                               Page: 12
====== =====================================================================================
   516                    RANDOM(SECONDS-PAST-MIDNIGHT) * 100000000
   517                STRING
   518                    TRIM(WS-Env-Temp-TXT,TRAILING)
   519                    WS-Slash-CHR
   520                    "STREAMIO-"
   521                    WS-8-Digit-NUM
   522                    TRIM(WS-256-Byte-TXT,TRAILING)
   523                    DELIMITED BY SIZE
   524                    INTO L-SCB-Filename-TXT
   525          END-EVALUATE
   526          EVALUATE TRUE
   527              WHEN L-SCB-Mode-Input-BOOL
   528                  MOVE 1 TO WS-Access-Mode-CD
   529              WHEN L-SCB-Mode-Output-BOOL
   530                  MOVE 2 TO WS-Access-Mode-CD
   531              WHEN L-SCB-Mode-Both-BOOL
   532                  MOVE 3 TO WS-Access-Mode-CD
   533              WHEN OTHER
   534                  MOVE -2 TO L-SCB-Return-CD
   535                  PERFORM 099-ERROR-Return
   536          END-EVALUATE
   537          CALL "CBL_OPEN_FILE" USING TRIM(L-SCB-Filename-TXT,TRAILING)
   538                                     WS-Access-Mode-CD
   539                                     0
   540                                     0
   541                                     L-SCB-Handle-NUM
   542          IF RETURN-CODE = 35
   543              MOVE 11 TO L-SCB-Return-CD
   544              PERFORM 099-ERROR-Return
   545          END-IF
   546          IF RETURN-CODE < 0
   547              MOVE -2 TO L-SCB-Return-CD
   548              PERFORM 099-ERROR-Return
   549          END-IF
   550          MOVE 00 TO L-SCB-Return-CD
   551          MOVE 0 TO L-SCB-Offset-NUM
   552          .
   553      200-CLOSE SECTION.
   554          CALL "CBL_CLOSE_FILE" USING L-SCB-Handle-NUM
   555          IF RETURN-CODE < 0
   556              MOVE -2 TO L-SCB-Return-CD
   557              PERFORM 099-ERROR-Return
   558          END-IF
   559          MOVE 00 TO L-SCB-Return-CD
   560          MOVE 0 TO L-SCB-Handle-NUM
   561          .
   562      300-WRITE SECTION.
   563          CALL "C$PARAMSIZE" USING 2
   564          MOVE RETURN-CODE TO WS-Arg-Length-NUM


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```

====== =================================================================================
```
    565             CALL "CBL_WRITE_FILE" USING L-SCB-Handle-NUM
    566                                        L-SCB-Offset-NUM
    567                                        WS-Arg-Length-NUM
    568                                        0
    569                                        L-Arg2-TXT
    570             PERFORM 040-Check-WRITE-SCB-Return-CD
    571             ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
    572             .
    573         400-READ SECTION.
    574             CALL "C$PARAMSIZE" USING 2
    575             MOVE RETURN-CODE TO WS-Arg-Length-NUM
    576             MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
    577             CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
    578                                       L-SCB-Offset-NUM
    579                                       WS-Arg-Length-NUM
    580                                       0
    581                                       L-Arg2-TXT
    582             PERFORM 050-Check-READ-SCB-Return-CD
    583             ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
    584             .
    585         500-READ-Delim SECTION.
    586             CALL "C$PARAMSIZE" USING 2
    587             MOVE RETURN-CODE TO WS-Arg-Length-NUM
    588             MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
    589             CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
    590                                       L-SCB-Offset-NUM
    591                                       WS-Arg-Length-NUM
    592                                       0
    593                                       L-Arg2-TXT
    594             PERFORM 050-Check-READ-SCB-Return-CD
    595             MOVE 0 TO WS-Tally-NUM
    596             INSPECT L-Arg2-TXT(1:WS-Arg-Length-NUM)
    597                 TALLYING WS-Tally-NUM FOR ALL X"0A"
    598             IF WS-Tally-NUM = 0 *> No LF found - return truncated data and position past n
    ext LF (if any)
    599                 IF L-Arg2-TXT(WS-Arg-Length-NUM:1) = X"0D"
    600                     MOVE SPACE TO L-Arg2-TXT(WS-Arg-Length-NUM:1)
    601                 END-IF
    602                 ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
    603                 MOVE 02 TO L-SCB-Return-CD
    604                 MOVE 256 TO WS-Arg-Length-NUM
    605                 PERFORM UNTIL 0 = 1
    606                     MOVE SPACES TO WS-Buffer-TXT
    607                     CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
    608                                               L-SCB-Offset-NUM
    609                                               WS-Arg-Length-NUM
    610                                               0
    611                                               WS-Buffer-TXT
    612                     IF RETURN-CODE < 0
```
====================================================================================

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement                                                              Page: 14
====== ================================================================================
   613                      MOVE -3 TO L-SCB-Return-CD
   614                      PERFORM 099-ERROR-Return
   615                  END-IF
   616                  IF RETURN-CODE = 10
   617                      GOBACK
   618                  END-IF
   619                  MOVE 0 TO WS-Tally-NUM
   620                  INSPECT WS-Buffer-TXT
   621                      TALLYING WS-Tally-NUM FOR ALL X"0A"
   622                  IF WS-Tally-NUM = 0
   623                      ADD 256 TO L-SCB-Offset-NUM
   624                  ELSE
   625                      MOVE 0 TO WS-Tally-NUM
   626                      INSPECT WS-Buffer-TXT
   627                          TALLYING WS-Tally-NUM
   628                          FOR CHARACTERS BEFORE INITIAL X"0A"
   629                      ADD WS-Tally-NUM, 1 TO L-SCB-Offset-NUM
   630                      GOBACK
   631                  END-IF
   632              END-PERFORM
   633          ELSE            *> There is (at least) one LF in the buffer
   634              MOVE 0 TO WS-Tally-NUM
   635              INSPECT L-Arg2-TXT(1:WS-Arg-Length-NUM)
   636                  TALLYING WS-Tally-NUM
   637                  FOR CHARACTERS BEFORE INITIAL X"0A"
   638              ADD WS-Tally-NUM, 1 TO L-SCB-Offset-NUM
   639              IF WS-Tally-NUM > 1
   640                  IF L-Arg2-TXT(WS-Tally-NUM:1) = X"0D"
   641                      COMPUTE WS-Arg-Length-NUM =
   642                              WS-Arg-Length-NUM
   643                              - WS-Tally-NUM
   644                              + 1
   645                  ELSE
   646                      COMPUTE WS-Arg-Length-NUM =
   647                              WS-Arg-Length-NUM
   648                              - WS-Tally-NUM
   649                      ADD 1 TO WS-Tally-NUM
   650                  END-IF
   651                  MOVE SPACES
   652                    TO L-Arg2-TXT(WS-Tally-NUM:WS-Arg-Length-NUM)
   653              ELSE
   654                  MOVE SPACES
   655                    TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   656              END-IF
   657          END-IF
   658          .


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```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                        2014/03/27
                          C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
PROGRAM-ID      Identifier/Register/Function    Defn   Where Defined   References      Page: 15
==============  ==============================  =====  ==============  ========================
STREAMIO        000-Main                        383 PROCEDURE
STREAMIO        020-Validate-Handle-Zero        432 PROCEDURE            392
STREAMIO        030-Validate-Handle-NonZero     438 PROCEDURE            387     395      398
                                                                        401     406      411
STREAMIO        040-Check-WRITE-SCB-Return-CD    444 PROCEDURE            424     570
STREAMIO        050-Check-READ-SCB-Return-CD     455 PROCEDURE            582     594
STREAMIO        060-Identify-TEMP                466 PROCEDURE            493     508
STREAMIO        099-ERROR-Return                 478 PROCEDURE            417     428      435
                                                                        441     447      451
                                                                        458     489      535
                                                                        544     548      557
                                                                        614
STREAMIO        100-OPEN                         485 PROCEDURE            393
STREAMIO        200-CLOSE                        553 PROCEDURE            388
STREAMIO        300-WRITE                        562 PROCEDURE            402     407      412
STREAMIO        400-READ                         573 PROCEDURE            396
STREAMIO        500-READ-Delim                   585 PROCEDURE            399
STREAMIO        L-Arg2-TXT                       380 LINKAGE              382     569C     576*
                                                                        581C    588*     593C
                                                                        599     600*     640
                                                                        652*    655*
STREAMIO        L-SCB-DELIM-Unix-BOOL            379 [STREAMIOcb   ]      405
STREAMIO        L-SCB-DELIM-Windows-BOOL         379 [STREAMIOcb   ]      410
STREAMIO        L-SCB-Delimiter-Mode-CD          379 [STREAMIOcb   ]
STREAMIO        L-SCB-Error-Routine-NUM          379 [STREAMIOcb   ]      479
STREAMIO        L-SCB-Error-Routine-PTR          379 [STREAMIOcb   ]      379     480C
STREAMIO        L-SCB-Filename-TXT               379 [STREAMIOcb   ]      390C    487      492
                                                                        494*    506*     507
                                                                        509     512      514*
                                                                        524*    537C
STREAMIO        L-SCB-Func-CLOSE-BOOL            379 [STREAMIOcb   ]      386
STREAMIO        L-SCB-Func-DELETE-BOOL           379 [STREAMIOcb   ]      389
STREAMIO        L-SCB-Func-OPEN-BOOL             379 [STREAMIOcb   ]      391
STREAMIO        L-SCB-Func-READ-BOOL             379 [STREAMIOcb   ]      394
STREAMIO        L-SCB-Func-READ-Delim-BOOL       379 [STREAMIOcb   ]      397
STREAMIO        L-SCB-Func-WRITE-BOOL            379 [STREAMIOcb   ]      400
STREAMIO        L-SCB-Func-WRITE-Delim-BOOL      379 [STREAMIOcb   ]      403
STREAMIO        L-SCB-Function-CD                379 [STREAMIOcb   ]
STREAMIO        L-SCB-Handle-NUM                 379 [STREAMIOcb   ]      419C    433      439
                                                                        541C    554C     560*
                                                                        565C    577C     589C
                                                                        607C
STREAMIO        L-SCB-MODE-Both-BOOL             379 [STREAMIOcb   ]      486     531
STREAMIO        L-SCB-Mode-CD                    379 [STREAMIOcb   ]
STREAMIO        L-SCB-MODE-Input-BOOL            379 [STREAMIOcb   ]      486     527
STREAMIO        L-SCB-MODE-Output-BOOL           379 [STREAMIOcb   ]      529
STREAMIO        L-SCB-Offset-NUM                 379 [STREAMIOcb   ]      420C    425*     551*
                                                                        566C    571*     578C
                                                                        583*    590C     602*

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```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                        2014/03/27
                             C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References       Page: 16
===============  ==============================  ======  ==============  ========================
                                                                        608C    623*    629*
                                                                        638*
STREAMIO         L-SCB-Return-CD                  379  [STREAMIOcb   ]   384*    416*    427*
                                                                        434*    440*    446*
                                                                        450*    453*    457*
                                                                        461*    464*    488*
                                                                        534*    543*    547*
                                                                        550*    556*    559*
                                                                        603*    613*
STREAMIO         L-StreamIO-Control-Block-TXT     377  LINKAGE          381
STREAMIO         RETURN-CODE                           PROCEDURE        445     449     456
                                                                        460     542     546
                                                                        555     564     575
                                                                        587     612     616
STREAMIO         WS-256-Byte-TXT                  375  WORKING-STORAGE  510*    512*    522
STREAMIO         WS-8-Digit-NUM                   374  WORKING-STORAGE  496*    503     515*
                                                                        521
STREAMIO         WS-Access-Mode-CD                367  WORKING-STORAGE  528*    530*    532*
                                                                        538C
STREAMIO         WS-Arg-Length-NUM                368  WORKING-STORAGE  408*    413*    421C
                                                                        425     564*    567C
                                                                        571     575*    576
                                                                        579C    583     587*
                                                                        588     591C    596
                                                                        599     600     602
                                                                        604*    609C    635
                                                                        641*    642     646*
                                                                        647     652     655
STREAMIO         WS-Buffer-TXT                    369  WORKING-STORAGE  606*    611C
STREAMIO         WS-Delim-Buffer-TXT              370  WORKING-STORAGE  409*    414*    423C
STREAMIO         WS-Env-Temp-TXT                  371  WORKING-STORAGE  467*    469     471
                                                                        474*    500     518
STREAMIO         WS-Slash-CHR                     372  WORKING-STORAGE  470*    472*    475*
                                                                        501     519
STREAMIO         WS-Tally-NUM                     373  WORKING-STORAGE  595*    597*    598
                                                                        619*    621*    622
                                                                        625*    627*    629
                                                                        634*    636*    638
                                                                        639     640     643
                                                                        648     649*    652




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