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)        **

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

Line   Statement   Page: 2
====== ===
   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

==

====== ==
    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)

==

====== ===
```
   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           .
```

==

```
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
```

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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

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

 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'.
```

```
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.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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

====== ===
```
   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:
    - `ACCEPT FROM COMMAND-LINE` statement
    - `ACCEPT FROM DATE/TIME` statement
    - `ACCEPT FROM ENVIRONMENT` statement
    - `EXIT PERFORM` statement
    - `EXIT SECTION` statement
    - `INSPECT` statement
    - `PERFORM FOREVER` statement
    - `SEARCH ALL` statement
    - `SET ENVIRONMENT` statement
    - `SORT` statement
    - `STRING` statement
    - `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.
```

```
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).
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                       Page: 7
```

```
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).
```

```
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.
```

```
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     '.
```

```
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: "'
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 17
```

```
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             .
```

====== ==

```
  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        *>************************************************************
```

```
===================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 20
```

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 21
```

```
   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             .
```

```
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     .
```

====== ===

```
 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
```

```
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            .
```

```
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.
```

```
================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL        Page: 32
```

```
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 ' '.
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 33
```

```
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
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                          /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'.
```

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

```
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).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /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).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /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).
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 41
```

```
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).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 43
====== ================================================================================
 1792 GC1213      05 VALUE 'FEXCEPTION-FILE             ' PIC X(33).
 1793 GC1213      05 VALUE 'FEXCEPTION-FILE-N           ' PIC X(33).     UNIMPLEMENTED
 1794 GC1213      05 VALUE 'FEXCEPTION-LOCATION         ' PIC X(33).
 1795 GC1213      05 VALUE 'FEXCEPTION-LOCATION-N       ' PIC X(33).     UNIMPLEMENTED
 1796         05 VALUE ' EXCEPTION-OBJECT               ' PIC X(33).     UNIMPLEMENTED
 1797 GC1213      05 VALUE 'FEXCEPTION-STATEMENT        ' PIC X(33).
 1798 GC1213      05 VALUE 'FEXCEPTION-STATUS           ' PIC X(33).
 1799         05 VALUE ' EXCLUSIVE                      ' PIC X(33).
 1800         05 VALUE 'VEXIT                           ' PIC X(33).
 1801 GC1213      05 VALUE 'FEXP                        ' PIC X(33).
 1802 GC1213      05 VALUE 'FEXP10                      ' PIC X(33).
 1803         05 VALUE ' EXPANDS                        ' PIC X(33).     UNIMPLEMENTED
 1804         05 VALUE ' EXTEND                         ' PIC X(33).
 1805         05 VALUE ' EXTERNAL                       ' PIC X(33).
 1806 GC1213      05 VALUE 'FFACTORIAL                  ' PIC X(33).
 1807         05 VALUE ' FACTORY                        ' PIC X(33).     UNIMPLEMENTED
 1808         05 VALUE ' FALSE                          ' PIC X(33).
 1809         05 VALUE 'KFD                             ' PIC X(33).
 1810         05 VALUE 'KFILE                           ' PIC X(33).
 1811         05 VALUE ' FILE-CONTROL                   ' PIC X(33).
 1812         05 VALUE ' FILE-ID                        ' PIC X(33).
 1813 GC1113      05 VALUE ' FILLER                     ' PIC X(33).
 1814         05 VALUE ' FINAL                          ' PIC X(33).
 1815         05 VALUE ' FIRST                          ' PIC X(33).
 1816 GC0712      05 VALUE ' FLOAT-BINARY-128           ' PIC X(33).     UNIMPLEMENTED
 1817 GC0712      05 VALUE ' FLOAT-BINARY-32            ' PIC X(33).     UNIMPLEMENTED
 1818 GC0712      05 VALUE ' FLOAT-BINARY-64            ' PIC X(33).     UNIMPLEMENTED
 1819         05 VALUE ' FLOAT-DECIMAL-16               ' PIC X(33).
 1820         05 VALUE ' FLOAT-DECIMAL-34               ' PIC X(33).
 1821         05 VALUE ' FLOAT-EXTENDED                 ' PIC X(33).     UNIMPLEMENTED
 1822 GC0712      05 VALUE ' FLOAT-INFINITY             ' PIC X(33).     UNIMPLEMENTED
 1823         05 VALUE ' FLOAT-LONG                     ' PIC X(33).
 1824 GC0712      05 VALUE ' FLOAT-NOT-A-NUMBER         ' PIC X(33).     UNIMPLEMENTED
 1825         05 VALUE ' FLOAT-SHORT                    ' PIC X(33).
 1826         05 VALUE ' FOOTING                        ' PIC X(33).
 1827         05 VALUE ' FOR                            ' PIC X(33).
 1828         05 VALUE ' FOREGROUND-COLOR               ' PIC X(33).
 1829         05 VALUE ' FOREGROUND-COLOUR              ' PIC X(33).
 1830 GC0711      05 VALUE ' FOREVER                    ' PIC X(33).
 1831         05 VALUE ' FORMAT                         ' PIC X(33).     UNIMPLEMENTED
 1832 GC1213      05 VALUE 'FFORMATTED-CURRENT-DATE     ' PIC X(33).     UNIMPLEMENTED
 1833 GC1213      05 VALUE 'FFORMATTED-DATE             ' PIC X(33).     UNIMPLEMENTED
 1834 GC1213      05 VALUE 'FFORMATTED-DATETIME         ' PIC X(33).     UNIMPLEMENTED
 1835 GC1213      05 VALUE 'FFORMATTED-TIME             ' PIC X(33).     UNIMPLEMENTED
 1836         05 VALUE 'MFORMFEED                       ' PIC X(33).
 1837 GC1213      05 VALUE 'FFRACTION-PART              ' PIC X(33).
 1838         05 VALUE 'VFREE                           ' PIC X(33).
 1839         05 VALUE ' FROM                           ' PIC X(33).
 1840         05 VALUE ' FULL                           ' PIC X(33).
 1841         05 VALUE ' FUNCTION                       ' PIC X(33).
 1842 GC0712      05 VALUE 'KFUNCTION-ID                ' PIC X(33).
 1843         05 VALUE ' FUNCTION-POINTER               ' PIC X(33).     UNIMPLEMENTED
 1844         05 VALUE 'VGENERATE                       ' PIC X(33).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 44
====== ==========================================================================
 1845           05 VALUE ' GET                    ' PIC X(33).     UNIMPLEMENTED
 1846           05 VALUE 'KGIVING                  ' PIC X(33).
 1847           05 VALUE ' GLOBAL                  ' PIC X(33).
 1848           05 VALUE 'VGO                      ' PIC X(33).
 1849           05 VALUE 'VGOBACK                  ' PIC X(33).
 1850           05 VALUE ' GREATER                 ' PIC X(33).
 1851           05 VALUE ' GROUP                   ' PIC X(33).
 1852           05 VALUE ' GROUP-USAGE             ' PIC X(33).     UNIMPLEMENTED
 1853           05 VALUE ' HEADING                 ' PIC X(33).
 1854           05 VALUE ' HIGH-VALUE              ' PIC X(33).
 1855           05 VALUE ' HIGH-VALUES             ' PIC X(33).
 1856 GC1213    05 VALUE 'FHIGHEST-ALGEBRAIC       ' PIC X(33).
 1857           05 VALUE ' HIGHLIGHT               ' PIC X(33).
 1858           05 VALUE ' I-O                     ' PIC X(33).
 1859           05 VALUE ' I-O-CONTROL             ' PIC X(33).
 1860           05 VALUE 'KID                      ' PIC X(33).
 1861           05 VALUE 'KIDENTIFICATION          ' PIC X(33).
 1862           05 VALUE 'VIF                      ' PIC X(33).
 1863           05 VALUE ' IGNORE                  ' PIC X(33).
 1864           05 VALUE ' IGNORING                ' PIC X(33).
 1865           05 VALUE ' IMPLEMENTS              ' PIC X(33).     UNIMPLEMENTED
 1866           05 VALUE ' IN                      ' PIC X(33).
 1867           05 VALUE ' INDEX                   ' PIC X(33).
 1868           05 VALUE 'KINDEXED                 ' PIC X(33).
 1869           05 VALUE ' INDICATE                ' PIC X(33).
 1870           05 VALUE ' INDIRECT                ' PIC X(33).     UNIMPLEMENTED
 1871           05 VALUE ' INHERITS                ' PIC X(33).     UNIMPLEMENTED
 1872           05 VALUE ' INITIAL                 ' PIC X(33).
 1873           05 VALUE 'VINITIALISE              ' PIC X(33).
 1874           05 VALUE ' INITIALISED             ' PIC X(33).
 1875           05 VALUE 'VINITIALIZE              ' PIC X(33).
 1876           05 VALUE ' INITIALIZED             ' PIC X(33).
 1877           05 VALUE 'VINITIATE                ' PIC X(33).
 1878           05 VALUE ' INPUT                   ' PIC X(33).
 1879           05 VALUE 'KINPUT-OUTPUT            ' PIC X(33).
 1880           05 VALUE 'VINSPECT                 ' PIC X(33).
 1881           05 VALUE ' INSTALLATION            ' PIC X(33).     OBSOLETE
 1882 GC1213    05 VALUE 'FINTEGER                 ' PIC X(33).
 1883 GC1213    05 VALUE 'FINTEGER-OF-BOOLEAN      ' PIC X(33).     UNIMPLEMENTED
 1884 GC1213    05 VALUE 'FINTEGER-OF-DATE         ' PIC X(33).
 1885 GC1213    05 VALUE 'FINTEGER-OF-DAY          ' PIC X(33).
 1886 GC1213    05 VALUE 'FINTEGER-OF-FORMATTED-DATE ' PIC X(33).   UNIMPLEMENTED
 1887 GC1213    05 VALUE 'FINTEGER-PART            ' PIC X(33).
 1888           05 VALUE ' INTERFACE               ' PIC X(33).     UNIMPLEMENTED
 1889           05 VALUE ' INTERFACE-ID            ' PIC X(33).     UNIMPLEMENTED
 1890           05 VALUE ' INTERMEDIATE            ' PIC X(33).     UNIMPLEMENTED
 1891           05 VALUE 'KINTO                    ' PIC X(33).
 1892           05 VALUE ' INTRINSIC               ' PIC X(33).
 1893           05 VALUE ' INVALID                 ' PIC X(33).
 1894           05 VALUE ' INVOKE                  ' PIC X(33).     UNIMPLEMENTED
 1895           05 VALUE ' IS                      ' PIC X(33).
 1896           05 VALUE ' JUST                    ' PIC X(33).
 1897           05 VALUE ' JUSTIFIED               ' PIC X(33).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 45
====== ==========================================================================================
 1898           05 VALUE ' KEPT                    ' PIC X(33).
 1899           05 VALUE ' KEY                     ' PIC X(33).
 1900           05 VALUE ' KEYBOARD                ' PIC X(33).
 1901           05 VALUE ' LABEL                   ' PIC X(33).
 1902           05 VALUE ' LAST                    ' PIC X(33).
 1903           05 VALUE ' LC_ALL                  ' PIC X(33).    UNIMPLEMENTED
 1904           05 VALUE ' LC_COLLATE              ' PIC X(33).    UNIMPLEMENTED
 1905           05 VALUE ' LC_CTYPE                ' PIC X(33).    UNIMPLEMENTED
 1906           05 VALUE ' LC_MESSAGES             ' PIC X(33).    UNIMPLEMENTED
 1907           05 VALUE ' LC_MONETARY             ' PIC X(33).    UNIMPLEMENTED
 1908           05 VALUE ' LC_NUMERIC              ' PIC X(33).    UNIMPLEMENTED
 1909           05 VALUE ' LC_TIME                 ' PIC X(33).    UNIMPLEMENTED
 1910           05 VALUE ' LEADING                 ' PIC X(33).
 1911           05 VALUE ' LEFT                    ' PIC X(33).
 1912           05 VALUE ' LEFT-JUSTIFY            ' PIC X(33).    UNIMPLEMENTED
 1913           05 VALUE ' LEFTLINE                ' PIC X(33).
 1914 GC1213    05 VALUE 'FLENGTH                  ' PIC X(33).
 1915 GC1213    05 VALUE 'FLENGTH-AN               ' PIC X(33).
 1916           05 VALUE ' LENGTH-CHECK            ' PIC X(33).
 1917           05 VALUE ' LESS                    ' PIC X(33).
 1918           05 VALUE ' LIMIT                   ' PIC X(33).
 1919           05 VALUE ' LIMITS                  ' PIC X(33).
 1920           05 VALUE ' LINAGE                  ' PIC X(33).
 1921           05 VALUE 'ILINAGE-COUNTER          ' PIC X(33).
 1922           05 VALUE ' LINE                    ' PIC X(33).
 1923 GC1213    05 VALUE 'ILINE-COUNTER            ' PIC X(33).
 1924           05 VALUE ' LINES                   ' PIC X(33).
 1925           05 VALUE 'KLINKAGE                 ' PIC X(33).
 1926           05 VALUE 'KLOCAL-STORAGE           ' PIC X(33).
 1927           05 VALUE ' LOCALE                  ' PIC X(33).
 1928 GC1213    05 VALUE 'FLOCALE-COMPARE          ' PIC X(33).
 1929 GC1213    05 VALUE 'FLOCALE-DATE             ' PIC X(33).
 1930 GC1213    05 VALUE 'FLOCALE-TIME             ' PIC X(33).
 1931 GC1213    05 VALUE 'FLOCALE-TIME-FROM-SECONDS ' PIC X(33).
 1932           05 VALUE ' LOCK                    ' PIC X(33).
 1933 GC1213    05 VALUE 'FLOG                     ' PIC X(33).
 1934 GC1213    05 VALUE 'FLOG10                   ' PIC X(33).
 1935           05 VALUE ' LOW-VALUE               ' PIC X(33).
 1936           05 VALUE ' LOW-VALUES              ' PIC X(33).
 1937           05 VALUE ' LOWER                   ' PIC X(33).
 1938 GC1213    05 VALUE 'FLOWER-CASE              ' PIC X(33).
 1939 GC1213    05 VALUE 'FLOWEST-ALGEBRAIC        ' PIC X(33).
 1940           05 VALUE ' LOWLIGHT                ' PIC X(33).
 1941           05 VALUE ' MANUAL                  ' PIC X(33).
 1942 GC1213    05 VALUE 'FMAX                     ' PIC X(33).
 1943 GC1213    05 VALUE 'FMEAN                    ' PIC X(33).
 1944 GC1213    05 VALUE 'FMEDIAN                  ' PIC X(33).
 1945           05 VALUE ' MEMORY                  ' PIC X(33).
 1946           05 VALUE 'VMERGE                   ' PIC X(33).
 1947           05 VALUE ' MESSAGE                 ' PIC X(33).    OBSOLETE
 1948           05 VALUE ' METHOD                  ' PIC X(33).    UNIMPLEMENTED
 1949           05 VALUE ' METHOD-ID               ' PIC X(33).    UNIMPLEMENTED
 1950 GC1213    05 VALUE 'FMIDRANGE                ' PIC X(33).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                            2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                      Page: 46
====== =========================================================================
 1951 GC1213     05 VALUE 'FMIN                         ' PIC X(33).
 1952            05 VALUE ' MINUS                       ' PIC X(33).
 1953 GC1213     05 VALUE 'FMOD                         ' PIC X(33).
 1954            05 VALUE ' MODE                        ' PIC X(33).
 1955 GC1213     05 VALUE 'FMODULE-CALLER-ID            ' PIC X(33).
 1956 GC1213     05 VALUE 'FMODULE-DATE                 ' PIC X(33).
 1957 GC1213     05 VALUE 'FMODULE-FORMATTED-DATE       ' PIC X(33).
 1958 GC1213     05 VALUE 'FMODULE-ID                   ' PIC X(33).
 1959 GC1213     05 VALUE 'FMODULE-PATH                 ' PIC X(33).
 1960 GC1213     05 VALUE 'FMODULE-SOURCE               ' PIC X(33).
 1961 GC1213     05 VALUE 'FMODULE-TIME                 ' PIC X(33).
 1962 GC1213     05 VALUE 'FMONETARY-DECIMAL-POINT      ' PIC X(33).
 1963 GC1213     05 VALUE 'FMONETARY-THOUSANDS-SEPARATOR ' PIC X(33).
 1964            05 VALUE 'VMOVE                        ' PIC X(33).
 1965            05 VALUE ' MULTIPLE                    ' PIC X(33).
 1966            05 VALUE 'VMULTIPLY                    ' PIC X(33).
 1967 GC0711     05 VALUE ' NAME                        ' PIC X(33).
 1968            05 VALUE ' NATIONAL                    ' PIC X(33).
 1969            05 VALUE ' NATIONAL-EDITED             ' PIC X(33).
 1970 GC1213     05 VALUE 'FNATIONAL-OF                 ' PIC X(33).    UNIMPLEMENTED
 1971            05 VALUE ' NATIVE                      ' PIC X(33).
 1972            05 VALUE ' NEAREST-AWAY-FROM-ZERO      ' PIC X(33).
 1973            05 VALUE ' NEAREST-EVEN                ' PIC X(33).
 1974            05 VALUE ' NEAREST-TOWARD-ZERO         ' PIC X(33).
 1975            05 VALUE ' NEGATIVE                    ' PIC X(33).
 1976            05 VALUE ' NESTED                      ' PIC X(33).    UNIMPLEMENTED
 1977            05 VALUE 'VNEXT                        ' PIC X(33).
 1978            05 VALUE ' NO                          ' PIC X(33).
 1979            05 VALUE ' NO-ECHO                     ' PIC X(33).
 1980            05 VALUE ' NONE                        ' PIC X(33).    UNIMPLEMENTED
 1981            05 VALUE ' NORMAL                      ' PIC X(33).
 1982            05 VALUE ' NOT                         ' PIC X(33).
 1983            05 VALUE ' NULL                        ' PIC X(33).
 1984            05 VALUE ' NULLS                       ' PIC X(33).
 1985            05 VALUE ' NUMBER                      ' PIC X(33).
 1986            05 VALUE 'INUMBER-OF-CALL-PARAMETERS   ' PIC X(33).
 1987            05 VALUE ' NUMBERS                     ' PIC X(33).
 1988            05 VALUE ' NUMERIC                     ' PIC X(33).
 1989 GC1213     05 VALUE 'FNUMERIC-DECIMAL-POINT       ' PIC X(33).
 1990            05 VALUE ' NUMERIC-EDITED              ' PIC X(33).
 1991 GC1213     05 VALUE 'FNUMERIC-THOUSANDS-SEPARATOR ' PIC X(33).
 1992 GC1213     05 VALUE 'FNUMVAL                      ' PIC X(33).
 1993 GC1213     05 VALUE 'FNUMVAL-C                    ' PIC X(33).
 1994 GC1213     05 VALUE 'FNUMVAL-F                    ' PIC X(33).
 1995            05 VALUE ' OBJECT                      ' PIC X(33).    UNIMPLEMENTED
 1996            05 VALUE ' OBJECT-COMPUTER             ' PIC X(33).
 1997            05 VALUE ' OBJECT-REFERENCE            ' PIC X(33).    UNIMPLEMENTED
 1998            05 VALUE ' OCCURS                      ' PIC X(33).
 1999            05 VALUE ' OF                          ' PIC X(33).
 2000            05 VALUE ' OFF                         ' PIC X(33).
 2001            05 VALUE ' OMITTED                     ' PIC X(33).
 2002            05 VALUE ' ON                          ' PIC X(33).
 2003            05 VALUE ' ONLY                        ' PIC X(33).
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                     Page: 46
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 47
====== ========================================================================================
 2004            05 VALUE 'VOPEN                  ' PIC X(33).
 2005            05 VALUE ' OPTIONAL               ' PIC X(33).
 2006            05 VALUE ' OPTIONS                ' PIC X(33).      UNIMPLEMENTED
 2007            05 VALUE ' OR                     ' PIC X(33).
 2008 GC1213     05 VALUE 'FORD                    ' PIC X(33).
 2009 GC1213     05 VALUE 'FORD-MAX                ' PIC X(33).
 2010 GC1213     05 VALUE 'FORD-MIN                ' PIC X(33).
 2011            05 VALUE ' ORDER                  ' PIC X(33).
 2012            05 VALUE ' ORGANISATION           ' PIC X(33).
 2013            05 VALUE ' ORGANIZATION           ' PIC X(33).
 2014            05 VALUE ' OTHER                  ' PIC X(33).
 2015            05 VALUE ' OUTPUT                 ' PIC X(33).
 2016            05 VALUE ' OVERFLOW               ' PIC X(33).
 2017            05 VALUE ' OVERLINE               ' PIC X(33).
 2018            05 VALUE ' OVERRIDE               ' PIC X(33).
 2019            05 VALUE ' PACKED-DECIMAL         ' PIC X(33).
 2020            05 VALUE ' PADDING                ' PIC X(33).
 2021            05 VALUE ' PAGE                   ' PIC X(33).
 2022 GC1213     05 VALUE 'IPAGE-COUNTER           ' PIC X(33).
 2023            05 VALUE ' PARAGRAPH              ' PIC X(33).
 2024            05 VALUE 'VPERFORM                ' PIC X(33).
 2025            05 VALUE ' PF                     ' PIC X(33).
 2026            05 VALUE ' PH                     ' PIC X(33).
 2027 GC1213     05 VALUE 'FPI                     ' PIC X(33).
 2028            05 VALUE 'KPIC                    ' PIC X(33).
 2029            05 VALUE 'KPICTURE                ' PIC X(33).
 2030            05 VALUE ' PLUS                   ' PIC X(33).
 2031            05 VALUE 'KPOINTER                ' PIC X(33).
 2032            05 VALUE ' POSITION               ' PIC X(33).
 2033            05 VALUE ' POSITIVE               ' PIC X(33).
 2034            05 VALUE ' PREFIXED               ' PIC X(33).      UNIMPLEMENTED
 2035            05 VALUE ' PRESENT                ' PIC X(33).
 2036 GC1213     05 VALUE 'FPRESENT-VALUE          ' PIC X(33).
 2037            05 VALUE ' PREVIOUS               ' PIC X(33).
 2038            05 VALUE 'MPRINTER                ' PIC X(33).
 2039            05 VALUE ' PRINTING               ' PIC X(33).
 2040            05 VALUE 'KPROCEDURE              ' PIC X(33).
 2041            05 VALUE ' PROCEDURE-POINTER      ' PIC X(33).
 2042            05 VALUE ' PROCEDURES             ' PIC X(33).
 2043            05 VALUE ' PROCEED                ' PIC X(33).
 2044            05 VALUE ' PROGRAM                ' PIC X(33).
 2045            05 VALUE 'KPROGRAM-ID             ' PIC X(33).
 2046            05 VALUE ' PROGRAM-POINTER        ' PIC X(33).
 2047            05 VALUE ' PROHIBITED             ' PIC X(33).
 2048            05 VALUE ' PROMPT                 ' PIC X(33).
 2049            05 VALUE ' PROPERTY               ' PIC X(33).      UNIMPLEMENTED
 2050            05 VALUE ' PROTOTYPE              ' PIC X(33).      UNIMPLEMENTED
 2051            05 VALUE ' PURGE                  ' PIC X(33).      OBSOLETE
 2052            05 VALUE ' QUEUE                  ' PIC X(33).      OBSOLETE
 2053            05 VALUE ' QUOTE                  ' PIC X(33).
 2054            05 VALUE ' QUOTES                 ' PIC X(33).
 2055            05 VALUE ' RAISE                  ' PIC X(33).      UNIMPLEMENTED
 2056            05 VALUE ' RAISING                ' PIC X(33).      UNIMPLEMENTED
```

```
========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                Page: 47
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 48
====== ==================================================================================
 2057 GC1213    05 VALUE 'FRANDOM                      ' PIC X(33).
 2058 GC1213    05 VALUE 'FRANGE                       ' PIC X(33).
 2059 GC1213    05 VALUE 'KRD                          ' PIC X(33).
 2060           05 VALUE 'VREAD                        ' PIC X(33).
 2061           05 VALUE 'VREADY                       ' PIC X(33).
 2062           05 VALUE 'VRECEIVE                     ' PIC X(33).    OBSOLETE
 2063           05 VALUE ' RECORD                      ' PIC X(33).
 2064           05 VALUE ' RECORDING                   ' PIC X(33).
 2065           05 VALUE ' RECORDS                     ' PIC X(33).
 2066           05 VALUE ' RECURSIVE                   ' PIC X(33).
 2067           05 VALUE 'KREDEFINES                   ' PIC X(33).
 2068           05 VALUE ' REEL                        ' PIC X(33).
 2069 GC0712    05 VALUE 'AREFERENCE                   ' PIC X(33).
 2070           05 VALUE ' REFERENCES                  ' PIC X(33).
 2071           05 VALUE ' RELATION                    ' PIC X(33).    UNIMPLEMENTED
 2072           05 VALUE ' RELATIVE                    ' PIC X(33).
 2073           05 VALUE 'VRELEASE                     ' PIC X(33).
 2074 GC1213    05 VALUE 'FREM                         ' PIC X(33).
 2075           05 VALUE ' REMAINDER                   ' PIC X(33).
 2076           05 VALUE ' REMARKS                     ' PIC X(33).    OBSOLETE
 2077           05 VALUE ' REMOVAL                     ' PIC X(33).
 2078           05 VALUE 'KRENAMES                     ' PIC X(33).
 2079           05 VALUE ' REPLACE                     ' PIC X(33).
 2080           05 VALUE 'KREPLACING                   ' PIC X(33).
 2081           05 VALUE 'KREPORT                      ' PIC X(33).
 2082           05 VALUE ' REPORTING                   ' PIC X(33).
 2083           05 VALUE ' REPORTS                     ' PIC X(33).
 2084           05 VALUE ' REPOSITORY                  ' PIC X(33).
 2085           05 VALUE ' REQUIRED                    ' PIC X(33).
 2086           05 VALUE ' RESERVE                     ' PIC X(33).
 2087           05 VALUE 'VRESET                       ' PIC X(33).
 2088           05 VALUE ' RESUME                      ' PIC X(33).    UNIMPLEMENTED
 2089           05 VALUE ' RETRY                       ' PIC X(33).    UNIMPLEMENTED
 2090           05 VALUE 'VRETURN                      ' PIC X(33).
 2091           05 VALUE 'IRETURN-CODE                 ' PIC X(33).
 2092           05 VALUE 'KRETURNING                   ' PIC X(33).
 2093 GC1213    05 VALUE 'FREVERSE                     ' PIC X(33).
 2094           05 VALUE ' REVERSE-VIDEO               ' PIC X(33).
 2095           05 VALUE ' REVERSED                    ' PIC X(33).
 2096           05 VALUE ' REWIND                      ' PIC X(33).
 2097           05 VALUE 'VREWRITE                     ' PIC X(33).
 2098           05 VALUE ' RF                          ' PIC X(33).
 2099           05 VALUE ' RH                          ' PIC X(33).
 2100           05 VALUE ' RIGHT                       ' PIC X(33).
 2101           05 VALUE ' RIGHT-JUSTIFY               ' PIC X(33).    UNIMPLEMENTED
 2102           05 VALUE 'VROLLBACK                    ' PIC X(33).
 2103           05 VALUE ' ROUNDED                     ' PIC X(33).
 2104           05 VALUE ' ROUNDING                    ' PIC X(33).    UNIMPLEMENTED
 2105           05 VALUE ' RUN                         ' PIC X(33).
 2106           05 VALUE ' SAME                        ' PIC X(33).
 2107           05 VALUE 'KSCREEN                      ' PIC X(33).
 2108           05 VALUE ' SCROLL                      ' PIC X(33).
 2109           05 VALUE 'KSD                          ' PIC X(33).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 49
====== ============================================================================
 2110           05 VALUE 'VSEARCH                   ' PIC X(33).
 2111           05 VALUE ' SECONDS                  ' PIC X(33).    UNIMPLEMENTED
 2112 GC1213    05 VALUE 'FSECONDS-FROM-FORMATTED-TIME ' PIC X(33).
 2113 GC1213    05 VALUE 'FSECONDS-PAST-MIDNIGHT    ' PIC X(33).
 2114           05 VALUE 'KSECTION                  ' PIC X(33).
 2115           05 VALUE ' SECURE                   ' PIC X(33).
 2116           05 VALUE ' SECURITY                 ' PIC X(33).    OBSOLETE
 2117           05 VALUE ' SEGMENT                  ' PIC X(33).    OBSOLETE
 2118           05 VALUE ' SEGMENT-LIMIT            ' PIC X(33).
 2119           05 VALUE ' SELECT                   ' PIC X(33).
 2120           05 VALUE ' SELF                     ' PIC X(33).    UNIMPLEMENTED
 2121           05 VALUE 'VSEND                     ' PIC X(33).    OBSOLETE
 2122           05 VALUE ' SENTENCE                 ' PIC X(33).
 2123           05 VALUE ' SEPARATE                 ' PIC X(33).
 2124           05 VALUE ' SEQUENCE                 ' PIC X(33).
 2125           05 VALUE ' SEQUENTIAL               ' PIC X(33).
 2126           05 VALUE 'VSET                      ' PIC X(33).
 2127           05 VALUE ' SHARING                  ' PIC X(33).
 2128 GC1213    05 VALUE 'FSIGN                     ' PIC X(33).
 2129           05 VALUE ' SIGNED                   ' PIC X(33).
 2130           05 VALUE ' SIGNED-INT               ' PIC X(33).
 2131           05 VALUE ' SIGNED-LONG              ' PIC X(33).
 2132           05 VALUE ' SIGNED-SHORT             ' PIC X(33).
 2133 GC1213    05 VALUE 'FSIN                      ' PIC X(33).
 2134           05 VALUE ' SIZE                     ' PIC X(33).
 2135           05 VALUE 'VSORT                     ' PIC X(33).
 2136           05 VALUE ' SORT-MERGE               ' PIC X(33).
 2137           05 VALUE 'ISORT-RETURN              ' PIC X(33).
 2138           05 VALUE ' SOURCE                   ' PIC X(33).
 2139           05 VALUE ' SOURCE-COMPUTER          ' PIC X(33).
 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).
```

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

```
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).
```

==
```
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 50
```

```
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).
```

```
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).
```

```
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
```

```
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).
```

```
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            .
```

```
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)
```

```
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             .
```

====== ==

```
 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             .
```

===
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 58

```
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
```

===
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 59

```
====== ========================================================================================
  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 = '. '
```

```
================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL          Page: 60
```

```
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
```

```
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            .
```

===
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 64

```
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           .
```

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                           Page: 67
```

```
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
```

```
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            .
```

```
 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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 70
```

```
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              .
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 71
```

```
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
```

```
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
```

```
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
```

```
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
```

```
 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
```

```
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                .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 80
======  ========================================================================================

  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)
```

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 87
```

```
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.
```

===
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 88

```
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
```

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                         Page: 90
```

```
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      ]
GCic             COB-SCR-F6                      181 [screenio      ]       862
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      ]
GCic             COB-SCR-KEY-HOME                181 [screenio      ]
GCic             COB-SCR-KEY-LEFT                181 [screenio      ]
GCic             COB-SCR-KEY-RIGHT               181 [screenio      ]
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      ]
```

```
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: 92
===============  ===============================  ======  ===============  ========================
GCic             COB-SCR-OK                       181 [screenio     ]
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     ]
GCic             F-Cobc-Output-FILE               173 FILE               164     1011     1029
GCic             F-Cobc-Output-REC                174 FILE              1012     1017*    1018
                                                                        1026*    1027
GCic             F-Source-Code-FILE               176 FILE               167      658     1177
                                                                        1181     1182     1195
                                                                        1196     1203
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
GCic             F9                                   WORKING-STORAGE    215
GCic             LD-Horiz-Line                    436 SCREEN             804
GCic             LD-LL-Corner                     431 SCREEN             459      489      505
                                                                         519
GCic             LD-Lower-T                       435 SCREEN             491
GCic             LD-LR-Corner                     433 SCREEN             461      493      507
                                                                         521
GCic             LD-UL-Corner                     430 SCREEN             449      463      495
                                                                         509
GCic             LD-Upper-T                       434 SCREEN             465
GCic             LD-UR-Corner                     432 SCREEN             451      467      497
                                                                         511
GCic             LD-Vert-Line                     437 SCREEN             453      454      456
                                                                         457      469      470
                                                                         471      473      474
                                                                         475      477      478
                                                                         479      481      482
                                                                         483      485      486
                                                                         487      499      500
                                                                         502      503      513
                                                                         514      516      517
GCic             LPP                                  PROCEDURE         1054C
GCic             LPPP                                 PROCEDURE         1055C
GCic             RETURN-CODE                          PROCEDURE         1013     1046*    1060*
                                                                        1062
GCic             S-Blank-SCR                      440 SCREEN             686     1237     1266
GCic             S-Switches-SCR                   442 SCREEN             830*     911     1001
                                                                        1030     1045     1066
                                                                        1077     1263
```

```
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: 93
===============  ============================== ======  =============== ========================
GCic             SELCHAR                                PROCEDURE        722     825      828
                                                                         835     841      847
                                                                         853     864      870
                                                                         876     882      1205
GCic             WS-Cmd-Args-TXT                   232 WORKING-STORAGE   726*    728      729
                                                                         732     737
GCic             WS-Cmd-End-Quote-CHR             234 WORKING-STORAGE   730*    733
GCic             WS-Cmd-SUB                       236 WORKING-STORAGE   727*    728      729
                                                                         731*    735*     740*
GCic             WS-Cmd-TXT                       230 WORKING-STORAGE   908*    1003*    1008*
                                                                         1010C   1079*    1086*
                                                                         1096*   1099*    1106*
                                                                         1110*   1116*    1121*
                                                                         1126*   1134*    1142*
                                                                         1148*   1154*    1159*
                                                                         1166C   1218*    1222*
                                                                         1223C   1225*    1229*
                                                                         1230C   1240*    1243*
                                                                         1246C   1248C    1250C
                                                                         1252C   1254C
GCic             WS-Cobc-Cmd-TXT                  238 WORKING-STORAGE   909*    918*     922*
                                                                         926*    930*     935*
                                                                         940*    945*     950*
                                                                         955*    960*     964*
                                                                         977*    985*     989*
                                                                         1004
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
                                                                         892*    913
GCic             WS-CS-DEBUG-CHR                  220 WORKING-STORAGE   596     834      835*
                                                                         837*    933
GCic             WS-CS-EXECUTE-CHR                221 WORKING-STORAGE   599     689      852
                                                                         853*    855*
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*
                                                                         878*    958
GCic             WS-CS-LIBRARY-CHR                223 WORKING-STORAGE   598     846      847*
                                                                         849*    924      1084
                                                                         1139    1178*    1205*
GCic             WS-CS-LISTING-CHR                224 WORKING-STORAGE   600     685      822*
                                                                         825*    828*     971
                                                                         973*    975
GCic             WS-CS-NOFUNC-CHR                 225 WORKING-STORAGE   602     863      864*
```

```
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: 94
===============  ==============================  ======  ===============  =========================
                                                                866*   948
GCic             WS-CS-NOTRUNC-CHR               226 WORKING-STORAGE   605    881    882*
                                                                884*   938
GCic             WS-CS-Switch-Defaults-TXT       208 WORKING-STORAGE   219
GCic             WS-CS-TRACEALL-CHR              227 WORKING-STORAGE   597    840    841*
                                                                843*   943
GCic             WS-CS-WARNALL-CHR              228 WORKING-STORAGE   603    869    870*
                                                                872*   953
GCic             WS-Delete-Fn-TXT               242 WORKING-STORAGE
GCic             WS-File-Name-TXT               244 WORKING-STORAGE   167    666    671
                                                                734*   739*   742
                                                                755    758    765
                                                                768    779    1052C
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*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
                                                                661*   661*   661*
GCic             WS-FSM-Status-CD              250 WORKING-STORAGE   169    661    663
GCic             WS-Horizontal-Line-TXT        254 WORKING-STORAGE   450    460    464
                                                                466    490    492
                                                                496    506    510
                                                                520    804*
GCic             WS-I-SUB                      256 WORKING-STORAGE   758*   759    760
                                                                761    763    767
                                                                771    786*   787
                                                                788    789    791
                                                                795    799    912*
                                                                923*   927*   931*
                                                                936*   941*   946*
                                                                951*   956*   961*
                                                                965*   978*   986*
                                                                990*   1080*  1087*
                                                                1097*  1100*  1107*
                                                                1111*  1117*  1122*
                                                                1127*  1135*  1143*
                                                                1149*  1155*  1160*
GCic             WS-J-SUB                      258 WORKING-STORAGE   1102*  1103   1104
                                                                1109
GCic             WS-Listing-CD                 260 WORKING-STORAGE   819    858*   859
                                                                860*   1056C
GCic             WS-Listing-Filename-TXT       262 WORKING-STORAGE   164    995*   996C
                                                                1005   1023   1051C
                                                                1221   1228
GCic             WS-Listing-TXT                264 WORKING-STORAGE   616    821*   824*
                                                                827*
```

```
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: 95
===============  ==============================  ======  ===============  ========================
GCic             WS-OC-Compile-DT                266 WORKING-STORAGE     528      712*
GCic             WS-OS-Cygwin-BOOL               300 WORKING-STORAGE     755      779      1094
                                                                         1124     1217
GCic             WS-OS-Dir-CHR                   287 WORKING-STORAGE     756*     760      771
                                                                         780*     1120
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*
                                                                         896*     910*     1000*
                                                                         1015*    1016     1024*
                                                                         1032*    1044*    1050*
                                                                         1059*    1064*    1076*
                                                                         1167*    1168*    1262
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
                                                                         1133     1239     1242
GCic             WS-Prog-Extension-TXT           318 WORKING-STORAGE     793*     798*
GCic             WS-Prog-File-Name-TXT           322 WORKING-STORAGE     574      765*     770*
                                                                         786      792      796
                                                                         988
GCic             WS-Prog-Folder-TXT              320 WORKING-STORAGE     575      764*     769*
                                                                         773      774*     777C
                                                                         1093     1094     1098
                                                                         1103     1104     1109
                                                                         1115
GCic             WS-RS-1st-Prog-Complete-BOOL    339 WORKING-STORAGE     1180     1189*
GCic             WS-RS-Compile-Failed-BOOL       332 WORKING-STORAGE     1021*    1033
GCic             WS-RS-Compile-OK-BOOL           330 WORKING-STORAGE     684      1014*
GCic             WS-RS-Compile-OK-CHR            329 WORKING-STORAGE
GCic             WS-RS-Compile-OK-Warn-BOOL      331 WORKING-STORAGE     684
GCic             WS-RS-Complete-BOOL             334 WORKING-STORAGE     681      1019*
GCic             WS-RS-Complete-CHR              333 WORKING-STORAGE
GCic             WS-RS-Double-Quote-Used-BOOL    337 WORKING-STORAGE     1092*    1118*    1152
GCic             WS-RS-IDENT-DIV-CHR             338 WORKING-STORAGE
GCic             WS-RS-More-To-1st-Prog-BOOL     340 WORKING-STORAGE     1179*
GCic             WS-RS-No-Switch-Changes-BOOL    342 WORKING-STORAGE     818      899*
GCic             WS-RS-No-Switch-Chgs-CHR        341 WORKING-STORAGE
GCic             WS-RS-Not-Complete-BOOL         335 WORKING-STORAGE     680*
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
GCic             WS-RS-Quote-CHR                 336 WORKING-STORAGE
GCic             WS-RS-Source-Rec-Ident-BOOL     349 WORKING-STORAGE     1188     1194
GCic             WS-RS-Source-Rec-Ignored-BOOL   350 WORKING-STORAGE     1192*
```

===
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 95

```
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: 96
===============   ==============================   ======  ===============  ========================
GCic              WS-RS-Source-Rec-Linkage-BOOL     348 WORKING-STORAGE   1193    1204
GCic              WS-RS-Source-Record-Type-CHR      347 WORKING-STORAGE   1187C   1201C
GCic              WS-RS-Switch-Changes-BOOL         343 WORKING-STORAGE    817*
GCic              WS-RS-Switch-Error-CHR            351 WORKING-STORAGE
GCic              WS-RS-Switch-Is-Bad-BOOL          352 WORKING-STORAGE
GCic              WS-RS-Switch-Is-Good-BOOL         353 WORKING-STORAGE
GCic              WS-Runtime-Switches-TXT           328 WORKING-STORAGE
GCic              WS-Tally-QTY                      355 WORKING-STORAGE    968*    970*    972
```

```
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: 97
===============  ===============================  ======  ===============  ========================
LISTING          000-Main                         2410 PROCEDURE
LISTING          100-Initialization               2427 PROCEDURE         2411
LISTING          300-Tokenize-Source              2500 PROCEDURE         2418
LISTING          310-Get-Token                    2551 PROCEDURE         2509
LISTING          311-Control-Record               2711 PROCEDURE         2570
LISTING          312-Expanded-Src-Record          2757 PROCEDURE         2572
LISTING          313-Check-For-Numeric-Token      2768 PROCEDURE         2698
LISTING          320-IDENTIFICATION-DIVISION      2810 PROCEDURE         2530
LISTING          330-ENVIRONMENT-DIVISION         2830 PROCEDURE         2532
LISTING          340-DATA-DIVISION                2856 PROCEDURE         2534
LISTING          350-PROCEDURE-DIVISION           2912 PROCEDURE         2536
LISTING          351-ACCEPT                       2983 PROCEDURE         2939
LISTING          351-ADD                          2993 PROCEDURE         2941
LISTING          351-ALLOCATE                     3004 PROCEDURE         2943
LISTING          351-CALL                         3016 PROCEDURE         2945
LISTING          351-COMPUTE                      3027 PROCEDURE         2947
LISTING          351-DIVIDE                       3036 PROCEDURE         2949
LISTING          351-FREE                         3056 PROCEDURE         2951
LISTING          351-GENERATE                     3060 PROCEDURE         2953    2957    2973
LISTING          351-INITIALIZE                   3064 PROCEDURE         2955
LISTING          351-INITIATE                     3073 PROCEDURE
LISTING          351-INSPECT                      3077 PROCEDURE         2959
LISTING          351-MOVE                         3107 PROCEDURE         2961
LISTING          351-MULTIPLY                     3116 PROCEDURE         2963
LISTING          351-PERFORM                      3132 PROCEDURE         2965
LISTING          351-SET                          3145 PROCEDURE         2967
LISTING          351-STRING                       3154 PROCEDURE         2969
LISTING          351-SUBTRACT                     3165 PROCEDURE         2971
LISTING          351-TERMINATE                    3176 PROCEDURE
LISTING          351-TRANSFORM                    3180 PROCEDURE         2975
LISTING          351-UNSTRING                     3190 PROCEDURE         2977
LISTING          360-Release-Def                  3207 PROCEDURE         2846    2883    2886
                                                                        2889    2892    2895
                                                                        2930
LISTING          361-Release-Ref                  3218 PROCEDURE         2848    2852    2905
                                                                        2979    2989    3000
                                                                        3012    3032    3052
                                                                        3069    3103    3112
                                                                        3128    3141    3150
                                                                        3161    3172    3186
                                                                        3203
LISTING          362-Release-Upd                  3223 PROCEDURE         2898    2901    2986
                                                                        2996    2998    3007
                                                                        3010    3019    3021
                                                                        3030    3048    3050
                                                                        3057    3061    3067
                                                                        3074    3084    3110
                                                                        3126    3135    3138
                                                                        3148    3157    3159
                                                                        3168    3170    3177
                                                                        3183    3193    3195
                                                                        3197    3199    3201
LISTING          363-Set-Upd                      3228 PROCEDURE         3039    3119    3224
```

```
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: 98
===============  ==============================  ======  ===============  ========================
LISTING          364-Set-Ref                     3238 PROCEDURE         3080    3219
LISTING          365-Release-Arg                 3247 PROCEDURE         3023
LISTING          366-Set-Arg                     3252 PROCEDURE         3248
LISTING          400-Produce-Xref-Listing        3263 PROCEDURE         2419
LISTING          410-Generate-Report-Line        3341 PROCEDURE         3272    3275    3285
                                                                         3289    3299    3311
                                                                         3327    3337
LISTING          420-Generate-Xref-Footer        3409 PROCEDURE         3278    3343
LISTING          500-Produce-Source-Listing      3443 PROCEDURE         2413
LISTING          510-Control-Record              3466 PROCEDURE         3456
LISTING          520-Expanded-Src-Record         3483 PROCEDURE         3458
LISTING          530-Generate-Source-Line        3549 PROCEDURE         3450    3497    3501
                                                                         3506    3510    3514
                                                                         3517    3533    3537
                                                                         3541    3544
LISTING          F-ES-1-7-TXT                    1430 FILE              2568    3454
LISTING          F-ES-1-CHR                      1427 FILE              2569    3455
LISTING          F-ES-2-256-TXT-256              1428 FILE              2712    3467
LISTING          F-ES-8-256-TXT                  1431 FILE
LISTING          F-Expanded-Src-FILE             1425 FILE              1416    2501    2548
                                                                         2558    3445    3448
                                                                         3463    3476
LISTING          F-Expanded-Src-REC              1426 FILE              2502*   2556    2580
                                                                         2582    2612    2616
                                                                         2625    2629    2638
                                                                         2642    2650    2668
                                                                         2753*   2758    3519
                                                                         3521
LISTING          F-Expanded-Src2-REC             1429 FILE
LISTING          F-Listing-135-REC               1435 FILE              3351*   3353*   3355*
                                                                         3356    3358*   3359
                                                                         3362*   3364*   3365
                                                                         3366*   3367*   3368
                                                                         3369    3370    3371
                                                                         3399    3411    3413*
                                                                         3414    3416*   3418*
                                                                         3420    3422    3423
                                                                         3567    3569    3571*
                                                                         3572    3574*   3576*
                                                                         3577    3578    3608*
                                                                         3610*   3612*   3613
                                                                         3615*   3616    3618*
                                                                         3620*   3621    3623*
                                                                         3624    3650*   3655*
                                                                         3656    3659*   3660
LISTING          F-Listing-96-REC                1434 FILE              3374*   3376*   3378*
                                                                         3379    3381*   3382
                                                                         3385*   3387*   3388
                                                                         3389*   3390*   3391
                                                                         3392    3393    3394
                                                                         3402    3426    3428*
                                                                         3429    3431*   3433*
                                                                         3435    3437    3438
```

```
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: 99
===============  ==============================  ======  ===============  ========================
                                                                         3584    3586    3587
                                                                         3589    3591*   3592
                                                                         3594*   3596*   3597
                                                                         3598    3627*   3629*
                                                                         3631*   3632    3634*
                                                                         3635    3637*   3639*
                                                                         3640    3642*   3643
                                                                         3651    3666    3671
                                                                         3675    3680    3684
                                                                         3688
LISTING          F-Listing-FILE                  1433 FILE              1418    2412    2420
LISTING          F-Listing-REC                   1436 FILE
LISTING          F-Original-Src-FILE             1438 FILE              1420    3444    3462
                                                                         3486
LISTING          F-Original-Src-REC              1439 FILE              3490
LISTING          F-OS-1-128-TXT                  1440 FILE
LISTING          F-OS-129-256-TXT                1445 FILE
LISTING          F-OS-7-CHR                      1442 FILE              3495
LISTING          F-OS-8-72-TXT                   1443 FILE              3491    3523
LISTING          F-Sort-Work-FILE                1447 FILE              1422    2414    3270
LISTING          F-Sort-Work-REC                 1448 FILE              2523*   2525    2560*
                                                                         2562    3040    3043*
                                                                         3046    3088*   3091
                                                                         3096*   3099    3120
                                                                         3122*   3125    3208*
                                                                         3215    3220    3225
                                                                         3229*   3239*   3249
                                                                         3253*
LISTING          F-SW-Def-Line-NUM               1453 FILE              3213*   3296    3304
                                                                         3308    3320    3321
LISTING          F-SW-Prog-ID-TXT                1449 FILE              2415    3209*   3230*
                                                                         3240*   3254*   3281
                                                                         3287    3292    3301
                                                                         3313    3317
LISTING          F-SW-Ref-Flag-CHR               1456 FILE              3045*   3090*   3098*
                                                                         3124*   3235*   3259*
                                                                         3332
LISTING          F-SW-Ref-Line-NUM               1455 FILE              2417    3214*   3234*
                                                                         3244*   3258*   3330
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*
```

```
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: 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.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                       2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
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        *>-------------------------------------------------------------**

================================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                            Page: 2
```

```
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                                         **

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

====== ==
```
   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-   **
```
==

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 **

==
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL   Page: 5

```
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"**

====================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                    Page: 6
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
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.          **

====================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                     Page: 7
```

====== ===
   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 '.

==

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

```
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.

====================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL          Page: 10
```

```
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 =

======  ==============================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL            Page: 11
```

```
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

====================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL          Page: 12
```

Chapter 6 - STREAMIO   24 September 2020

====== ==
```
   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          .



====================================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL              Page: 14
```

```
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*


================================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL              Page: 15
```

```
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
```

```
=============================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL                 Page: 16
```

7. GNU Free Documentation License

Version 1.3, 3 November 2008

Copyright © 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
`https://fsf.org/`

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

0. PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document *free* in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or non-commercially. Secondarily, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

1. APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The "Document", below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "you". You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A "Modified Version" of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A "Secondary Section" is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The "Invariant Sections" are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The "Cover Texts" are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A "Transparent" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not "Transparent" is called "Opaque".

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The "Title Page" means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

The "publisher" means any person or entity that distributes copies of the Document to the public.

A section "Entitled XYZ" means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as "Acknowledgements", "Dedications", "Endorsements", or "History".) To "Preserve the Title" of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

2. VERBATIM COPYING

   You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

   You may also lend copies, under the same conditions stated above, and you may publicly display copies.

3. COPYING IN QUANTITY

   If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

   If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

   If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

   It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

4. MODIFICATIONS

   You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.

B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.

C. State on the Title page the name of the publisher of the Modified Version, as the publisher.

D. Preserve all the copyright notices of the Document.

E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.

F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.

G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.

H. Include an unaltered copy of this License.

I. Preserve the section Entitled "History", Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled "History" in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.

J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.

K. For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.

L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.

M. Delete any section Entitled "Endorsements". Such a section may not be included in the Modified Version.

N. Do not retitle any existing section to be Entitled "Endorsements" or to conflict in title with any Invariant Section.

O. Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section Entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties—for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

5. COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements."

6. COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

7. AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

8. TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

9. TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, or distribute it is void, and will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, receipt of a copy of some or all of the same material does not give you any rights to use it.

10. FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See `https://www.gnu.org/licenses/`.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation. If the Document specifies that a proxy can decide which future versions of this License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Document.

11. RELICENSING

"Massive Multiauthor Collaboration Site" (or "MMC Site") means any World Wide Web server that publishes copyrightable works and also provides prominent facilities for anybody to edit those works. A public wiki that anybody can edit is an example of such a server. A "Massive Multiauthor Collaboration" (or "MMC") contained in the site means any set of copyrightable works thus published on the MMC site.

"CC-BY-SA" means the Creative Commons Attribution-Share Alike 3.0 license published by Creative Commons Corporation, a not-for-profit corporation with a principal place of business in San Francisco, California, as well as future copyleft versions of that license published by that same organization.

"Incorporate" means to publish or republish a Document, in whole or in part, as part of another Document.

An MMC is "eligible for relicensing" if it is licensed under this License, and if all works that were first published under this License somewhere other than this MMC, and subsequently incorporated in whole or in part into the MMC, (1) had no cover texts or invariant sections, and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site under CC-BY-SA on the same site at any time before August 1, 2009, provided the MMC is eligible for relicensing.