GnuCOBOL Sample Programs

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

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
```

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

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


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

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                              Page: 2
====== =============================================================================
    50 10 COL 1 VALUE '5         5          5          5          5          5          '.
    51 05 LINE + 1.
    52 10 COL 1 VALUE '6         6          6          6          6          6          '.
    53 05 LINE + 1.
    54 10 COL 1 VALUE '7         7          7          7          7          7          '.
    55 *> #1
    56 05 LINE 05.
    57 10 COL 2   BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    58 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    59 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    60 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    61 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    62 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    63 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    64 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    65 05 LINE + 1.
    66 10 COL 2   BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    67 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    68 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    69 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    70 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    71 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    72 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    73 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    74 05 LINE + 1.
    75 10 COL 2   BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    76 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    77 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    78 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    79 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    80 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    81 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    82 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    83 05 LINE + 1.
    84 10 COL 2   BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    85 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    86 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    87 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    88 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    89 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    90 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    91 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    92 05 LINE + 1.
    93 10 COL 2   BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    94 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    95 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    96 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    97 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    98 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.

====================================================================================
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/colors.cbl
Line    Statement                                                             Page: 3
====== ================================================================================
   99 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
  100 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
  101 05 LINE + 1.
  102 10 COL 2  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT VALUE ’X’.
  103 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT VALUE ’X’.
  104 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT VALUE ’X’.
  105 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT VALUE ’X’.
  106 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT VALUE ’X’.
  107 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT VALUE ’X’.
  108 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
  109 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
  110 05 LINE + 1.
  111 10 COL 2  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT VALUE ’X’.
  112 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT VALUE ’X’.
  113 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT VALUE ’X’.
  114 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT VALUE ’X’.
  115 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT VALUE ’X’.
  116 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT VALUE ’X’.
  117 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
  118 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
  119 05 LINE + 1.
  120 10 COL 2  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT VALUE ’X’.
  121 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT VALUE ’X’.
  122 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT VALUE ’X’.
  123 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT VALUE ’X’.
  124 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT VALUE ’X’.
  125 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT VALUE ’X’.
  126 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
  127 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
  128 *> #2
  129 05 LINE 05.
  130 10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 VALUE ’X’.
  131 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 VALUE ’X’.
  132 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 VALUE ’X’.
  133 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 VALUE ’X’.
  134 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 VALUE ’X’.
  135 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 VALUE ’X’.
  136 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 VALUE ’X’.
  137 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 VALUE ’X’.
  138 05 LINE + 1.
  139 10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 VALUE ’X’.
  140 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 VALUE ’X’.
  141 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 VALUE ’X’.
  142 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 VALUE ’X’.
  143 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 VALUE ’X’.
  144 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 VALUE ’X’.
  145 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 VALUE ’X’.
  146 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 VALUE ’X’.
  147 05 LINE + 1.

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                              Page: 4
====== =================================================================================
  148 10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 VALUE 'X'.
  149 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 VALUE 'X'.
  150 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 VALUE 'X'.
  151 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 VALUE 'X'.
  152 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 VALUE 'X'.
  153 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 VALUE 'X'.
  154 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 VALUE 'X'.
  155 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 VALUE 'X'.
  156 05 LINE + 1.
  157 10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 VALUE 'X'.
  158 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 VALUE 'X'.
  159 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 VALUE 'X'.
  160 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 VALUE 'X'.
  161 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 VALUE 'X'.
  162 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 VALUE 'X'.
  163 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 VALUE 'X'.
  164 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 VALUE 'X'.
  165 05 LINE + 1.
  166 10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 VALUE 'X'.
  167 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 VALUE 'X'.
  168 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 VALUE 'X'.
  169 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 VALUE 'X'.
  170 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 VALUE 'X'.
  171 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 VALUE 'X'.
  172 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 VALUE 'X'.
  173 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 VALUE 'X'.
  174 05 LINE + 1.
  175 10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 VALUE 'X'.
  176 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 VALUE 'X'.
  177 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 VALUE 'X'.
  178 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 VALUE 'X'.
  179 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 VALUE 'X'.
  180 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 VALUE 'X'.
  181 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 VALUE 'X'.
  182 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 VALUE 'X'.
  183 05 LINE + 1.
  184 10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 VALUE 'X'.
  185 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 VALUE 'X'.
  186 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 VALUE 'X'.
  187 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 VALUE 'X'.
  188 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 VALUE 'X'.
  189 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 VALUE 'X'.
  190 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 VALUE 'X'.
  191 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 VALUE 'X'.
  192 05 LINE + 1.
  193 10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 VALUE 'X'.
  194 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 VALUE 'X'.
  195 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 VALUE 'X'.
  196 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 VALUE 'X'.

=====================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                     Page: 4
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                              Page: 5
====== ===============================================================================
   197 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 VALUE 'X'.
   198 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 VALUE 'X'.
   199 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 VALUE 'X'.
   200 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 VALUE 'X'.
   201 *> #3
   202 05 LINE 05.
   203 10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   204 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   205 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   206 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   207 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   208 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   209 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   210 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   211 05 LINE + 1.
   212 10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   213 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   214 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   215 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   216 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   217 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   218 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   219 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   220 05 LINE + 1.
   221 10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   222 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   223 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   224 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   225 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   226 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   227 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   228 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   229 05 LINE + 1.
   230 10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   231 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   232 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   233 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   234 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   235 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   236 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   237 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   238 05 LINE + 1.
   239 10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   240 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   241 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   242 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   243 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   244 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   245 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.

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

====== ===
   246 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT VALUE ’X’.
   247 05 LINE + 1.
   248 10 COL 22 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT VALUE ’X’.
   249 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT VALUE ’X’.
   250 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT VALUE ’X’.
   251 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT VALUE ’X’.
   252 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT VALUE ’X’.
   253 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT VALUE ’X’.
   254 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT VALUE ’X’.
   255 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT VALUE ’X’.
   256 05 LINE + 1.
   257 10 COL 22 BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT VALUE ’X’.
   258 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT VALUE ’X’.
   259 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT VALUE ’X’.
   260 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT VALUE ’X’.
   261 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT VALUE ’X’.
   262 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT VALUE ’X’.
   263 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT VALUE ’X’.
   264 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT VALUE ’X’.
   265 05 LINE + 1.
   266 10 COL 22 BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT VALUE ’X’.
   267 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT VALUE ’X’.
   268 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT VALUE ’X’.
   269 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT VALUE ’X’.
   270 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE ’X’.
   271 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE ’X’.
   272 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE ’X’.
   273 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE ’X’.
   274 *> #4
   275 05 LINE 05.
   276 10 COL 32 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   277 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   278 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   279 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   280 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   281 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   282 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   283 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   284 05 LINE + 1.
   285 10 COL 32 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   286 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   287 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   288 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   289 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   290 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   291 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   292 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE ’X’.
   293 05 LINE + 1.
   294 10 COL 32 BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE ’X’.

==

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                      C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                              Page: 7
======  ================================================================================
   295 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   296 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   297 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   298 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   299 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   300 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   301 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   302 05 LINE + 1.
   303 10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   304 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   305 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   306 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   307 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   308 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   309 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   310 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   311 05 LINE + 1.
   312 10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   313 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   314 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   315 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   316 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   317 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   318 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   319 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   320 05 LINE + 1.
   321 10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   322 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   323 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   324 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   325 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   326 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   327 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   328 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   329 05 LINE + 1.
   330 10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   331 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   332 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   333 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   334 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   335 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   336 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   337 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   338 05 LINE + 1.
   339 10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   340 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   341 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   342 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   343 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                 2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                        Page: 8
======  ========================================================================
   344 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   345 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   346 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   347 *> #5
   348 05 LINE 05.
   349 10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   350 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   351 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   352 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   353 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   354 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   355 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   356 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   357 05 LINE + 1.
   358 10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   359 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   360 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   361 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   362 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   363 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   364 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   365 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   366 05 LINE + 1.
   367 10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   368 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   369 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   370 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   371 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   372 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   373 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   374 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   375 05 LINE + 1.
   376 10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   377 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   378 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   379 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   380 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   381 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   382 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   383 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   384 05 LINE + 1.
   385 10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   386 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   387 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   388 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   389 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   390 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   391 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   392 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.

========================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                       Page: 8
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line   Statement                                                                  Page: 9
====== ==================================================================================
  393 05 LINE + 1.
  394 10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  395 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
  396 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
  397 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
  398 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
  399 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
  400 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
  401 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
  402 05 LINE + 1.
  403 10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  404 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
  405 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
  406 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
  407 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
  408 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
  409 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
  410 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
  411 05 LINE + 1.
  412 10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  413 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
  414 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
  415 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
  416 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
  417 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
  418 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
  419 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
  420 *> #6
  421 05 LINE 05.
  422 10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  423 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  424 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  425 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  426 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  427 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  428 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  429 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  430 05 LINE + 1.
  431 10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  432 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  433 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  434 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  435 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  436 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  437 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  438 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  439 05 LINE + 1.
  440 10 COL 52  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  441 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.

============================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                         Page: 9
```

====== ===
   442 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   443 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   444 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   445 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   446 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   447 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   448 05 LINE + 1.
   449 10 COL 52 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   450 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   451 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   452 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   453 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   454 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   455 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   456 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   457 05 LINE + 1.
   458 10 COL 52 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   459 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   460 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   461 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   462 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   463 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   464 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   465 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   466 05 LINE + 1.
   467 10 COL 52 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   468 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   469 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   470 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   471 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   472 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   473 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   474 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   475 05 LINE + 1.
   476 10 COL 52 BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   477 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   478 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   479 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   480 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   481 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   482 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   483 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   484 05 LINE + 1.
   485 10 COL 52 BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   486 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   487 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   488 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   489 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   490 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.

==

Line   Statement   Page: 11
====== ===
   491 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   492 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   493 *> #7
   494 05 LINE 17.
   495 10 COL 02 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   496 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   497 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   498 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   499 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   500 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   501 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   502 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   503 05 LINE + 1.
   504 10 COL 02 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   505 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   506 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   507 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   508 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   509 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   510 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   511 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   512 05 LINE + 1.
   513 10 COL 02 BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   514 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   515 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   516 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   517 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   518 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   519 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   520 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   521 05 LINE + 1.
   522 10 COL 02 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   523 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   524 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   525 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   526 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   527 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   528 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   529 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   530 05 LINE + 1.
   531 10 COL 02 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   532 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   533 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   534 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   535 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   536 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   537 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   538 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   539 05 LINE + 1.

==
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/colors.cbl
Line    Statement                                                      Page: 12
====== =========================================================================
  540 10 COL 02  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  541 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  542 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  543 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  544 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  545 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  546 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  547 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  548 05 LINE + 1.
  549 10 COL 02  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  550 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  551 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  552 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  553 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  554 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  555 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  556 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  557 05 LINE + 1.
  558 10 COL 02  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  559 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  560 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  561 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  562 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  563 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  564 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  565 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  566 *> #8
  567 05 LINE 17.
  568 10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
  569 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
  570 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
  571 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
  572 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
  573 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
  574 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
  575 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
  576 05 LINE + 1.
  577 10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
  578 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
  579 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
  580 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
  581 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
  582 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
  583 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
  584 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
  585 05 LINE + 1.
  586 10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
  587 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
  588 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK VALUE 'X'.

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                            Page: 13
======  ==============================================================================
   589 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   590 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   591 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   592 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   593 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   594 05 LINE + 1.
   595 10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   596 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   597 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   598 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   599 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   600 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   601 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   602 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   603 05 LINE + 1.
   604 10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   605 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   606 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   607 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   608 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   609 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   610 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   611 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   612 05 LINE + 1.
   613 10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   614 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   615 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   616 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   617 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   618 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   619 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   620 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   621 05 LINE + 1.
   622 10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   623 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   624 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   625 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   626 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   627 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   628 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   629 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   630 05 LINE + 1.
   631 10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   632 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   633 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   634 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   635 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   636 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   637 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK VALUE 'X'.

======================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL          Page: 13
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                            Page: 14
====== =============================================================================================
   638 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   639 *> #9
   640 05 LINE 17.
   641 10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   642 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   643 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   644 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   645 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   646 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   647 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   648 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   649 05 LINE + 1.
   650 10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   651 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   652 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   653 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   654 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   655 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   656 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   657 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   658 05 LINE + 1.
   659 10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   660 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   661 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   662 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   663 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   664 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   665 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   666 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   667 05 LINE + 1.
   668 10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   669 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   670 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   671 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   672 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   673 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   674 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   675 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   676 05 LINE + 1.
   677 10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   678 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   679 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   680 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   681 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   682 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   683 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   684 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   685 05 LINE + 1.
   686 10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line   Statement                                                             Page: 15
====== =====================================================================================
   687 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   688 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   689 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   690 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   691 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   692 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   693 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   694 05 LINE + 1.
   695 10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   696 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   697 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   698 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   699 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   700 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   701 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   702 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   703 05 LINE + 1.
   704 10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   705 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   706 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   707 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   708 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   709 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   710 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   711 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   712 *> #10
   713 05 LINE 17.
   714 10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   715 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   716 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   717 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   718 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   719 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   720 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   721 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   722 05 LINE + 1.
   723 10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   724 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   725 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   726 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   727 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   728 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   729 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   730 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   731 05 LINE + 1.
   732 10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   733 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   734 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   735 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                       C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                               Page: 16
======  ===================================================================================
   736 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   737 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   738 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   739 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   740 05 LINE + 1.
   741 10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   742 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   743 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   744 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   745 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   746 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   747 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   748 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   749 05 LINE + 1.
   750 10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   751 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   752 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   753 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   754 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   755 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   756 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   757 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   758 05 LINE + 1.
   759 10 COL 32  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   760 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   761 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   762 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   763 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   764 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   765 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   766 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   767 05 LINE + 1.
   768 10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   769 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   770 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   771 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   772 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   773 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   774 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   775 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   776 05 LINE + 1.
   777 10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   778 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   779 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   780 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   781 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   782 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   783 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   784 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                             Page: 17
====== ==================================================================================
  785 *> #11
  786 05 LINE 17.
  787 10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  788 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  789 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  790 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  791 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  792 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  793 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  794 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  795 05 LINE + 1.
  796 10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  797 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  798 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  799 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  800 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  801 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  802 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  803 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  804 05 LINE + 1.
  805 10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  806 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  807 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  808 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  809 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  810 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  811 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  812 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  813 05 LINE + 1.
  814 10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  815 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  816 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  817 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  818 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  819 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  820 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  821 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  822 05 LINE + 1.
  823 10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  824 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  825 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  826 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  827 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  828 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  829 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  830 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  831 05 LINE + 1.
  832 10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  833 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.

====================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL           Page: 17
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                   2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                           Page: 18
====== =============================================================================
   834 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   835 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   836 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   837 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   838 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   839 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   840 05 LINE + 1.
   841 10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   842 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   843 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   844 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   845 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   846 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   847 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   848 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   849 05 LINE + 1.
   850 10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   851 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   852 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   853 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   854 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   855 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   856 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   857 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   858 *> #12
   859 05 LINE 17.
   860 10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   861 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   862 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   863 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   864 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   865 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   866 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   867 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   868 05 LINE + 1.
   869 10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   870 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   871 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   872 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   873 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   874 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   875 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   876 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   877 05 LINE + 1.
   878 10 COL 52  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   879 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   880 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   881 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   882 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.

====================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL        Page: 18
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                       2014/03/27
                               C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                              Page: 19
====== ==================================================================================
   883 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   884 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   885 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   886 05 LINE + 1.
   887 10 COL 52  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   888 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   889 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   890 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   891 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   892 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   893 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   894 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   895 05 LINE + 1.
   896 10 COL 52  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   897 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   898 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   899 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   900 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   901 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   902 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   903 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   904 05 LINE + 1.
   905 10 COL 52  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   906 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   907 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   908 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   909 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   910 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   911 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   912 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   913 05 LINE + 1.
   914 10 COL 52  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   915 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   916 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   917 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   918 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   919 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   920 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   921 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   922 05 LINE + 1.
   923 10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   924 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   925 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   926 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   927 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   928 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   929 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   930 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   931 PROCEDURE DIVISION.

==================================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL                  Page: 19
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                               2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                       Page: 20
====== =========================================================================
   932 000-Main SECTION.
   933  DISPLAY S-COLORTST-SCR
   934  STOP RUN
   935  .
```

```
=================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL      Page: 20
```

```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                           2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/colors.cbl
PROGRAM-ID       Identifier/Register/Function    Defn   Where Defined   References    Page: 21
===============  ==============================   ======  ==============  =========================
colors           000-Main                         932 PROCEDURE
colors           S-COLORTST-SCR                     6 SCREEN            933
```

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.

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

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

==

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

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

5. GCic

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

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

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

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

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

- Creating a GnuCOBOL compilation unit that consists of multiple programs

- Using CDF conditional compilation facilities

- Using the "SCREEN SECTION" and associated "ACCEPT" and "DISPLAY" statements

- Using "DECLARATIVES" to trap file I/O errors

- Using "FILE-STATUS"

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

- Using the following statements:

    o "ACCEPT FROM COMMAND-LINE" statement

    o "ACCEPT FROM DATE/TIME" statement

    o "ACCEPT FROM ENVIRONMENT" statement

    o "EXIT PERFORM" statement

    o "EXIT SECTION" statement

    o "INSPECT" statement

    o "PERFORM FOREVER" statement

- o "SEARCH ALL" statement

- o "SET ENVIRONMENT" statement

- o "SORT" statement

- o "STRING" statement

- o "UNSTRING" statement

- Using the following built-in subroutines:

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

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

  - o "CBL_CHANGE_DIR" built-in system subroutine

  - o "CBL_CHECK_FILE_EXIST" built-in system subroutine

  - o "CBL_DELETE_FILE" built-in system subroutine

  - o "SYSTEM" built-in system subroutine

- Using the following intrinsic functions:

  - o "CONCATENATE" intrinsic function

  - o "LENGTH" intrinsic function

  - o "LOWER-CASE" intrinsic function

  - o "NUMVAL" intrinsic function

  - o "TRIM" intrinsic function

  - o "UPPER-CASE" intrinsic function

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

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

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

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

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

```
   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    **
```

==
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 2

```
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.
```

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

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

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

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

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

```
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
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 11
```

```
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     '.
```

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

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

```
==============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                  Page: 16
```

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

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

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

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

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

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 19
```

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

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

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

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

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

```
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     .
```

```
=============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 27
```

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

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

```
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            .
```

```
=========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                Page: 29
```

```
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
```

```
 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).
```

```
===================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 38
```

```
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).
```

```
=============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 40
```

```
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).
```

```
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).
```

```
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).
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 48
```

```
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).
```

```
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).
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 54
```

```
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             .
```

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

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

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

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

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

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

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

```
====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                     Page: 63
```

```
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            .
```

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

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

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

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

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

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

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

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

```
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              .
```

```
================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL              Page: 69
```

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

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

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

```
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                .
```

```
==============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 72
```

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 74
```

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 77
```

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

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 78
```

```
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               .
```

```
================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL          Page: 79
```

```
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           .
```

```
===========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                Page: 81
```

```
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              .
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 83
```

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 84
```

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 86
```

```
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.
```

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 96
```

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 99
```

```
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*
```

```
====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 101
```

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 102
```

```
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
```

```
===========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL           Page: 103
```

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

6. STREAMIO

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

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

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

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

- Coding a GnuCOBOL subroutine

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

- Using hexadecimal alphanumeric literals

- Using the following statements:

  o "ACCEPT FROM ENVIRONMENT" statement

  o "INSPECT" statement

  o "STRING" statement

- Using the following built-in subroutines:

  o "C$PARAMSIZE" built-in system subroutine

  o "CBL_CLOSE_FILE" built-in system subroutine

  o "CBL_DELETE_FILE" built-in system subroutine

  o "CBL_EXIT_PROC" built-in system subroutine

  o "CBL_OPEN_FILE" built-in system subroutine

  o "CBL_READ_FILE" built-in system subroutine

  o "CBL_WRITE_FILE" built-in system subroutine

- Using the following intrinsic functions:

  o "RANDOM" intrinsic function

  o "TRIM" intrinsic function

First, here is the STREAMIOcb.cpy copybook:

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

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

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

====== ==

```
   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        *>-------------------------------------------------------------**
```

====== ==

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

====== ===
```
   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    **
```
===

```
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
```

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


======================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                    Page: 8
```

Line   Statement   Page: 9
====== ===
        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

==
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL   Page: 9

```
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
```

Line   Statement   Page: 13
====== ===
    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

==
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL   Page: 13

```
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
```

7. GNU Free Documentation License

Version 1.3, 3 November 2008

Copyright © 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
`http://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 `http://www.gnu.org/copyleft/`.

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.

ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

```
Copyright (C)  year  your name.
Permission is granted to copy, distribute and/or modify this document
under the terms of the GNU Free Documentation License, Version 1.3
or any later version published by the Free Software Foundation;
with no Invariant Sections, no Front-Cover Texts, and no Back-Cover
Texts.  A copy of the license is included in the section entitled ''GNU
Free Documentation License''.
```

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the "with. . . Texts." line with this:

```
with the Invariant Sections being list their titles, with
the Front-Cover Texts being list, and with the Back-Cover Texts
being list.
```

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.