GnuCOBOL Sample Programs

For Version 3.1 [11 Nov 2020 at 11:00]

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

This manual documents GnuCOBOL 3.1, 11 Nov 2020 at 11:00 build.

Table of Contents

1. FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

2. COBDUMP

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

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

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

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

- Coding a GnuCOBOL subroutine
- Using `USAGE POINTER` data items
- Using the `ANY LENGTH` data item attribute
- Coding for an `OPTIONAL` subprogram argument
- Using the `NUMBER-OF-CALL-PARAMETERS` special register
- Using the `C$PRINTABLE` built-in system subroutine

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

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

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

```
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
```

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

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

```
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
```

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

3. Colors

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:18
 379   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
 380   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
 381   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
 382   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
 383   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
 384   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
 385   05 LINE + 1.
 386   10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
 387   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
 388   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
 389   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
 390   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
 391   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
 392   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
 393   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
 394   05 LINE + 1.
 395   10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
 396   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
 397   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
 398   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
 399   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
 400   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
 401   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
 402   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
 403   05 LINE + 1.
 404   10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
 405   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
 406   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
 407   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
 408   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
 409   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
 410   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
 411   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
 412   05 LINE + 1.
 413   10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
 414   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
 415   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
 416   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
 417   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
 418   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
 419   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
 420   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
 421   *> #6
 422   05 LINE 05.
 423   10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 424   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 425   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 426   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 427   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 428   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 429   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 430   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
 431   05 LINE + 1.
 432   10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
```

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

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

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

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

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

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

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

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

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

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:20
  757    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  758    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  759    05 LINE + 1.
  760    10 COL 32  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  761    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  762    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  763    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  764    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  765    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  766    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  767    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  768    05 LINE + 1.
  769    10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  770    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  771    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  772    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  773    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  774    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  775    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  776    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  777    05 LINE + 1.
  778    10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  779    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  780    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  781    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  782    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  783    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  784    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  785    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  786    *> #11
  787    05 LINE 17.
  788    10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  789    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  790    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  791    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  792    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  793    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  794    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  795    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  796    05 LINE + 1.
  797    10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  798    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  799    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  800    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  801    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  802    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  803    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  804    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  805    05 LINE + 1.
  806    10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  807    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  808    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  809    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  810    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:21
   811   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   812   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   813   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   814   05 LINE + 1.
   815   10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   816   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   817   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   818   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   819   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   820   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   821   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   822   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   823   05 LINE + 1.
   824   10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   825   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   826   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   827   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   828   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   829   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   830   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   831   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   832   05 LINE + 1.
   833   10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   834   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   835   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   836   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   837   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   838   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   839   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   840   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   841   05 LINE + 1.
   842   10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   843   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   844   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   845   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   846   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   847   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   848   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   849   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   850   05 LINE + 1.
   851   10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   852   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   853   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   854   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   855   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   856   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   857   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   858   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   859   *> #12
   860   05 LINE 17.
   861   10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   862   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   863   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   864   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

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

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

```
ACS Cobol Xref v2.02.02         Dictionary File for COLORS      07/12/2019  16:57:00:21
   919   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   920   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   921   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   922   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   923   05 LINE + 1.
   924   10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   925   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   926   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   927   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   928   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   929   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   930   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   931   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE ’X’.
   932   PROCEDURE DIVISION.
   933   000-Main SECTION.
   934    DISPLAY S-COLORTST-SCR.
   935    STOP RUN.
   936       *>>>Info: Total Copy Depth Used = 01
```

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

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

S-COLORTST-SCR                 000007S  000934
```

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

None
```

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

None
```

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

None
```

4. DAY-FROM-DATE

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

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

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

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

- Coding a GnuCOBOL user-defined function
- Using the `ANY LENGTH` data item attribute
- Using the `RETURNING` option in a subprogram
- Using the `DATE-OF-INTEGER` intrinsic function
- Using the `C$PARAMSIZE` built-in system subroutine

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

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

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

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

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

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

5. GCic

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

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

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

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

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

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

==
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 1

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 2
====== ======================================================================

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

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

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 4
```

```
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.
```

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                          Page: 5
```

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

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

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

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

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

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

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                  Page: 10
```

```
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        *>1234567890123456789012345678901234567890123456789012345678901234567890
   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        *>1234567890123456789012345678901234567890123456789012345678901234567890
   396        *>           1         2         3         4         5         6         7         8
   397        *>
   398        *> If this program is run on Windows, it must run with codepage 437 activated to
   399        *> display the line-drawing characters.  With a native Windows build or a
   400        *> Windows/MinGW build, one could use the command 'chcp 437' to set that codepage
   401        *> for display within a Windows console window (that should be the default though).
   402        *> With a Windows/Cygwin build, set the environment variable CYGWIN to a value of
   403        *> 'codepage:oem' (this cannot be done from within the program though - you will
   404        *> have to use the 'Computer/Advanced System Settings/Environment Variables' (Vista
   405        *> or Windows 7) function to define the variable.  XP Users: use 'My Computer/
   406        *> Properties/Advanced/Environment Variables'.
   407        *>
   408        *> OSX users may use line drawing characters in this and any GNU COBOL program
```

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

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

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

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

==

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

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

```
================================================================================================
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: "'
```

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

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

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 18
```

```
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
```

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

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 22
```

```
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
```

```
==================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 24
```

```
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            .
```

```
==================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 26
```

```
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
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 28
```

```
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            .
```

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

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

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

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

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

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

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

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

```
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
```

==
```
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                  Page: 35
```

```
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'.
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 36
```

```
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.
```

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 37
```

```
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).
```

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                               2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 42
====== ========================================================================
 1739            05 VALUE 'KDIVISION                  ' PIC X(33).
 1740            05 VALUE 'KDOWN                      ' PIC X(33).
 1741            05 VALUE ' DUPLICATES                ' PIC X(33).
 1742            05 VALUE ' DYNAMIC                   ' PIC X(33).
 1743 GC1213     05 VALUE 'FE                         ' PIC X(33).
 1744            05 VALUE ' EBCDIC                    ' PIC X(33).
 1745 GC0712     05 VALUE ' EC                        ' PIC X(33).
 1746            05 VALUE ' EGI                       ' PIC X(33).    OBSOLETE
 1747            05 VALUE 'VELSE                      ' PIC X(33).
 1748            05 VALUE ' EMI                       ' PIC X(33).    OBSOLETE
 1749            05 VALUE ' EMPTY-CHECK               ' PIC X(33).
 1750            05 VALUE 'VENABLE                    ' PIC X(33).    OBSOLETE
 1751 GC0710     05 VALUE 'KEND                       ' PIC X(33).
 1752            05 VALUE ' END-ACCEPT                ' PIC X(33).
 1753            05 VALUE ' END-ADD                   ' PIC X(33).
 1754            05 VALUE ' END-CALL                  ' PIC X(33).
 1755            05 VALUE ' END-CHAIN                 ' PIC X(33).    UNIMPLEMENTED
 1756            05 VALUE ' END-COMPUTE               ' PIC X(33).
 1757            05 VALUE ' END-DELETE                ' PIC X(33).
 1758            05 VALUE ' END-DISPLAY               ' PIC X(33).
 1759            05 VALUE ' END-DIVIDE                ' PIC X(33).
 1760            05 VALUE ' END-EVALUATE              ' PIC X(33).
 1761            05 VALUE ' END-IF                    ' PIC X(33).
 1762            05 VALUE ' END-MULTIPLY              ' PIC X(33).
 1763            05 VALUE ' END-OF-PAGE               ' PIC X(33).
 1764            05 VALUE ' END-PERFORM               ' PIC X(33).
 1765            05 VALUE ' END-READ                  ' PIC X(33).
 1766            05 VALUE ' END-RECEIVE               ' PIC X(33).    OBSOLETE
 1767            05 VALUE ' END-RETURN                ' PIC X(33).
 1768            05 VALUE ' END-REWRITE               ' PIC X(33).
 1769            05 VALUE ' END-SEARCH                ' PIC X(33).
 1770            05 VALUE ' END-START                 ' PIC X(33).
 1771            05 VALUE ' END-STRING                ' PIC X(33).
 1772            05 VALUE ' END-SUBTRACT              ' PIC X(33).
 1773            05 VALUE ' END-UNSTRING              ' PIC X(33).
 1774            05 VALUE ' END-WRITE                 ' PIC X(33).
 1775            05 VALUE 'VENTRY                     ' PIC X(33).
 1776            05 VALUE ' ENTRY-CONVENTION          ' PIC X(33).    UNIMPLEMENTED
 1777            05 VALUE 'KENVIRONMENT               ' PIC X(33).
 1778            05 VALUE ' ENVIRONMENT-NAME          ' PIC X(33).
 1779            05 VALUE ' ENVIRONMENT-VALUE         ' PIC X(33).
 1780            05 VALUE ' EO                        ' PIC X(33).    UNIMPLEMENTED
 1781            05 VALUE ' EOL                       ' PIC X(33).
 1782            05 VALUE ' EOP                       ' PIC X(33).
 1783            05 VALUE ' EOS                       ' PIC X(33).
 1784            05 VALUE ' EQUAL                     ' PIC X(33).
 1785            05 VALUE 'KEQUALS                    ' PIC X(33).
 1786            05 VALUE ' ERASE                     ' PIC X(33).
 1787            05 VALUE ' ERROR                     ' PIC X(33).
 1788            05 VALUE ' ESCAPE                    ' PIC X(33).
 1789            05 VALUE ' ESI                       ' PIC X(33).    OBSOLETE
 1790            05 VALUE 'VEVALUATE                  ' PIC X(33).
 1791            05 VALUE ' EXCEPTION                 ' PIC X(33).
```

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

```
==================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 43
```

```
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).
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 44
```

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

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

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

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

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

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

```
===============================================================================================
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).
```

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 51
====== =========================================================================
 2216           05 VALUE 'MSYSLST                    ' PIC X(33).
 2217           05 VALUE 'MSYSOUT                     ' PIC X(33).
 2218           05 VALUE ' SYSTEM-DEFAULT             ' PIC X(33).
 2219           05 VALUE ' TABLE                      ' PIC X(33).        UNIMPLEMENTED
 2220           05 VALUE 'KTALLYING                   ' PIC X(33).
 2221 GC1213    05 VALUE 'FTAN                        ' PIC X(33).
 2222           05 VALUE ' TAPE                       ' PIC X(33).
 2223           05 VALUE ' TERMINAL                   ' PIC X(33).        OBSOLETE
 2224           05 VALUE 'VTERMINATE                  ' PIC X(33).
 2225           05 VALUE ' TEST                       ' PIC X(33).
 2226 GC1213    05 VALUE 'FTEST-DATE-YYYYMMDD         ' PIC X(33).
 2227 GC1213    05 VALUE 'FTEST-DAY-YYYYDDD           ' PIC X(33).
 2228 GC1213    05 VALUE 'FTEST-FORMATTED-DATETIME    ' PIC X(33).        UNIMPLEMENTED
 2229 GC1213    05 VALUE 'FTEST-NUMVAL                ' PIC X(33).
 2230 GC1213    05 VALUE 'FTEST-NUMVAL-C              ' PIC X(33).
 2231 GC1213    05 VALUE 'FTEST-NUMVAL-F              ' PIC X(33).
 2232           05 VALUE ' TEXT                       ' PIC X(33).        OBSOLETE
 2233           05 VALUE ' THAN                       ' PIC X(33).
 2234           05 VALUE ' THEN                       ' PIC X(33).
 2235           05 VALUE ' THROUGH                    ' PIC X(33).
 2236           05 VALUE ' THRU                       ' PIC X(33).
 2237           05 VALUE ' TIME                       ' PIC X(33).
 2238 GC0711    05 VALUE ' TIME-OUT                   ' PIC X(33).
 2239 GC0711    05 VALUE ' TIMEOUT                    ' PIC X(33).
 2240           05 VALUE ' TIMES                      ' PIC X(33).
 2241           05 VALUE 'KTO                         ' PIC X(33).
 2242           05 VALUE ' TOP                        ' PIC X(33).
 2243           05 VALUE ' TOWARD-GREATER             ' PIC X(33).
 2244           05 VALUE ' TOWARD-LESSER              ' PIC X(33).
 2245           05 VALUE ' TRAILING                   ' PIC X(33).
 2246           05 VALUE ' TRAILING-SIGN              ' PIC X(33).        UNIMPLEMENTED
 2247           05 VALUE 'VTRANSFORM                  ' PIC X(33).
 2248 GC1213    05 VALUE 'FTRIM                       ' PIC X(33).
 2249           05 VALUE ' TRUE                       ' PIC X(33).
 2250           05 VALUE ' TRUNCATION                 ' PIC X(33).
 2251           05 VALUE ' TYPE                       ' PIC X(33).
 2252           05 VALUE ' TYPEDEF                    ' PIC X(33).        UNIMPLEMENTED
 2253           05 VALUE ' UCS-4                      ' PIC X(33).        UNIMPLEMENTED
 2254           05 VALUE ' UNDERLINE                  ' PIC X(33).
 2255           05 VALUE ' UNIT                       ' PIC X(33).
 2256           05 VALUE ' UNIVERSAL                  ' PIC X(33).        UNIMPLEMENTED
 2257           05 VALUE 'VUNLOCK                     ' PIC X(33).
 2258           05 VALUE ' UNSIGNED                   ' PIC X(33).
 2259           05 VALUE ' UNSIGNED-INT               ' PIC X(33).
 2260           05 VALUE ' UNSIGNED-LONG              ' PIC X(33).
 2261           05 VALUE ' UNSIGNED-SHORT             ' PIC X(33).
 2262           05 VALUE 'VUNSTRING                   ' PIC X(33).
 2263           05 VALUE ' UNTIL                      ' PIC X(33).
 2264           05 VALUE 'KUP                         ' PIC X(33).
 2265           05 VALUE ' UPDATE                     ' PIC X(33).
 2266           05 VALUE ' UPON                       ' PIC X(33).
 2267           05 VALUE ' UPPER                      ' PIC X(33).
 2268 GC1213    05 VALUE 'FUPPER-CASE                 ' PIC X(33).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 52
======= ==========================================================================
 2269           05 VALUE ' USAGE                       ' PIC X(33).
 2270           05 VALUE 'VUSE                         ' PIC X(33).
 2271 GC0711    05 VALUE ' USER                        ' PIC X(33).
 2272           05 VALUE ' USER-DEFAULT                ' PIC X(33).
 2273           05 VALUE 'KUSING                       ' PIC X(33).
 2274           05 VALUE ' UTF-16                      ' PIC X(33).     UNIMPLEMENTED
 2275           05 VALUE ' UTF-8                       ' PIC X(33).     UNIMPLEMENTED
 2276           05 VALUE ' VAL-STATUS                  ' PIC X(33).     UNIMPLEMENTED
 2277           05 VALUE ' VALID                       ' PIC X(33).     UNIMPLEMENTED
 2278           05 VALUE ' VALIDATE                    ' PIC X(33).     UNIMPLEMENTED
 2279           05 VALUE ' VALIDATE-STATUS             ' PIC X(33).     UNIMPLEMENTED
 2280 GC0712    05 VALUE 'AVALUE                       ' PIC X(33).
 2281           05 VALUE ' VALUES                      ' PIC X(33).
 2282 GC1213    05 VALUE 'FVARIANCE                    ' PIC X(33).
 2283           05 VALUE 'KVARYING                     ' PIC X(33).
 2284           05 VALUE ' VDISABLE                    ' PIC X(33).     UNIMPLEMENTED
 2285           05 VALUE ' WAIT                        ' PIC X(33).
 2286           05 VALUE 'VWHEN                        ' PIC X(33).
 2287 GC1213    05 VALUE 'FWHEN-COMPILED               ' PIC X(33).
 2288           05 VALUE ' WITH                        ' PIC X(33).
 2289           05 VALUE ' WORDS                       ' PIC X(33).
 2290           05 VALUE 'KWORKING-STORAGE             ' PIC X(33).
 2291           05 VALUE 'VWRITE                       ' PIC X(33).
 2292 GC1213    05 VALUE 'FYEAR-TO-YYYY                ' PIC X(33).
 2293           05 VALUE ' YYYYDDD                     ' PIC X(33).
 2294           05 VALUE ' YYYYMMDD                    ' PIC X(33).
 2295           05 VALUE ' ZERO                        ' PIC X(33).
 2296           05 VALUE ' ZERO-FILL                   ' PIC X(33).     UNIMPLEMENTED
 2297           05 VALUE ' ZEROES                      ' PIC X(33).
 2298           05 VALUE ' ZEROS                       ' PIC X(33).
 2299      01 WS-Reserved-Word-Table-TXT REDEFINES WS-Reserved-Words-TXT.
 2300 GC1113    05 WS-Reserved-Word-TXT      OCCURS 754 TIMES
 2301                                        ASCENDING KEY
 2302                                            WS-RW-Word-TXT
 2303                                        INDEXED WS-RW-IDX.
 2304           10 WS-RW-Type-CD          PIC X(1).
 2305           10 WS-RW-Word-TXT         PIC X(32).
 2306
 2307      01 WS-Runtime-Switches.
 2308 GC0710    05 WS-RS-Duplicate-CHR          PIC X(1).
 2309           05 WS-RS-In-Which-Pgm-CHR       PIC X(1).
 2310              88 WS-RS-In-Main-Module-BOOL     VALUE 'M'.
 2311              88 WS-RS-In-Copybook-BOOL        VALUE 'C'.
 2312           05 WS-RS-Last-Token-Ended-Sent-CHR  PIC X(1).
 2313           05 WS-RS-Processing-PICTURE-CHR     PIC X(1).
 2314           05 WS-RS-Token-Ended-Sentence-CHR   PIC X(1).
 2315 GC0710    05 WS-RS-Verb-Has-Been-Found-CHR    PIC X(1).
 2316
 2317      01 WS-Saved-Section-TXT            PIC X(15).
 2318
 2319 GC1213 01 WS-Src-Dashes-TXT.
 2320 GC0712    05 VALUE '======'                PIC X(7).
 2321 GC0712    05 VALUE ALL '='                 PIC X(128).
```

```
===================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 52
```

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 53
```

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

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

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 55
```

```
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)
```

```
================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL          Page: 56
```

```
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            .
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 57
```

```
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            .
```

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

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

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

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

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 61
```

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                       Page: 62
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 63
====== =========================================================================

  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            .
```

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

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

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

```
================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL            Page: 65
```

```
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            .
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 66
```

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

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

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

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

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

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

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

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

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

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

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

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 73
```

```
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
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 76
```

```
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
```

```
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)
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                       Page: 80
```

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

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

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 82
```

```
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
```

```
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             .
```

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 85
```

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

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

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

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

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

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

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

```
=====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 89
```

```
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    ]
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 91
```

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 92
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 93
===============  =============================  ======  ===============  ========================
GCic             SELCHAR                                PROCEDURE         722     825      828
                                                                         835     841      847
                                                                         853     864      870
                                                                         876     882     1205
GCic             WS-Cmd-Args-TXT                 232 WORKING-STORAGE     726*    728      729
                                                                         732     737
GCic             WS-Cmd-End-Quote-CHR            234 WORKING-STORAGE     730*    733
GCic             WS-Cmd-SUB                      236 WORKING-STORAGE     727*    728      729
                                                                         731*    735*     740*
GCic             WS-Cmd-TXT                      230 WORKING-STORAGE     908*   1003*    1008*
                                                                        1010C   1079*    1086*
                                                                        1096*   1099*    1106*
                                                                        1110*   1116*    1121*
                                                                        1126*   1134*    1142*
                                                                        1148*   1154*    1159*
                                                                        1166C   1218*    1222*
                                                                        1223C   1225*    1229*
                                                                        1230C   1240*    1243*
                                                                        1246C   1248C    1250C
                                                                        1252C   1254C
GCic             WS-Cobc-Cmd-TXT                 238 WORKING-STORAGE     909*    918*     922*
                                                                         926*    930*     935*
                                                                         940*    945*     950*
                                                                         955*    960*     964*
                                                                         977*    985*     989*
                                                                        1004
GCic             WS-Compilation-Switches-TXT     183 WORKING-STORAGE
GCic             WS-Config-Fn-TXT                240 WORKING-STORAGE     914*    920
GCic             WS-CS-All-Switches-TXT          218 WORKING-STORAGE
GCic             WS-CS-Arg-H1-TXT                185 WORKING-STORAGE     643*
GCic             WS-CS-Arg-H2-TXT                186 WORKING-STORAGE     644*
GCic             WS-CS-Args-TXT                  184 WORKING-STORAGE    1157    1158
GCic             WS-CS-Config-NUM                203 WORKING-STORAGE     635     890*     891
                                                                         892*    913
GCic             WS-CS-DEBUG-CHR                 220 WORKING-STORAGE     596     834      835*
                                                                         837*    933
GCic             WS-CS-EXECUTE-CHR               221 WORKING-STORAGE     599     689      852
                                                                         853*    855*
GCic             WS-CS-Extra-H1-TXT              206 WORKING-STORAGE     641*
GCic             WS-CS-Extra-H2-TXT              207 WORKING-STORAGE     642*
GCic             WS-CS-Extra-TXT                 205 WORKING-STORAGE     981     983
GCic             WS-CS-Filename-TXT              196 WORKING-STORAGE     635     913
GCic             WS-CS-Filenames-Table-TXT       195 WORKING-STORAGE
GCic             WS-CS-Filenames-TXT             187 WORKING-STORAGE     195
GCic             WS-CS-FREE-CHR                  222 WORKING-STORAGE     604     875      876*
                                                                         878*    958
GCic             WS-CS-LIBRARY-CHR               223 WORKING-STORAGE     598     846      847*
                                                                         849*    924     1084
                                                                        1139    1178*    1205*
GCic             WS-CS-LISTING-CHR               224 WORKING-STORAGE     600     685      822*
                                                                         825*    828*     971
                                                                         973*    975
GCic             WS-CS-NOFUNC-CHR                225 WORKING-STORAGE     602     863      864*
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                      2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn  Where Defined   References      Page: 94
===============  ==============================  ====== ===============  ========================
                                                                       866*    948
GCic             WS-CS-NOTRUNC-CHR               226 WORKING-STORAGE   605     881     882*
                                                                       884*    938
GCic             WS-CS-Switch-Defaults-TXT       208 WORKING-STORAGE   219
GCic             WS-CS-TRACEALL-CHR              227 WORKING-STORAGE   597     840     841*
                                                                       843*    943
GCic             WS-CS-WARNALL-CHR               228 WORKING-STORAGE   603     869     870*
                                                                       872*    953
GCic             WS-Delete-Fn-TXT                242 WORKING-STORAGE
GCic             WS-File-Name-TXT                244 WORKING-STORAGE   167     666     671
                                                                       734*    739*    742
                                                                       755     758     765
                                                                       768     779     1052C
GCic             WS-File-Status-Message-TXT      248 WORKING-STORAGE
GCic             WS-FN-CHR                       245 WORKING-STORAGE   760     767*    771*
GCic             WS-FSM-Msg-TXT                  252 WORKING-STORAGE   661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
                                                                       661*    661*    661*
GCic             WS-FSM-Status-CD                250 WORKING-STORAGE   169     661     663
GCic             WS-Horizontal-Line-TXT          254 WORKING-STORAGE   450     460     464
                                                                       466     490     492
                                                                       496     506     510
                                                                       520     804*
GCic             WS-I-SUB                        256 WORKING-STORAGE   758*    759     760
                                                                       761     763     767
                                                                       771     786*    787
                                                                       788     789     791
                                                                       795     799     912*
                                                                       923*    927*    931*
                                                                       936*    941*    946*
                                                                       951*    956*    961*
                                                                       965*    978*    986*
                                                                       990*    1080*   1087*
                                                                       1097*   1100*   1107*
                                                                       1111*   1117*   1122*
                                                                       1127*   1135*   1143*
                                                                       1149*   1155*   1160*
GCic             WS-J-SUB                        258 WORKING-STORAGE   1102*   1103    1104
                                                                       1109
GCic             WS-Listing-CD                   260 WORKING-STORAGE   819     858*    859
                                                                       860*    1056C
GCic             WS-Listing-Filename-TXT         262 WORKING-STORAGE   164     995*    996C
                                                                       1005    1023    1051C
                                                                       1221    1228
GCic             WS-Listing-TXT                  264 WORKING-STORAGE   616     821*    824*
                                                                       827*
```

```
GNUCOBOL 3.0 24DEC2017   Cross-Reference Listing                         2017/12/24
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID        Identifier/Register/Function   Defn  Where Defined   References      Page: 95
================  ==============================  ====  ==============  ========================
GCic              WS-OC-Compile-DT                 266  WORKING-STORAGE     528      712*
GCic              WS-OS-Cygwin-BOOL                300  WORKING-STORAGE     755      779      1094
                                                                          1124     1217
GCic              WS-OS-Dir-CHR                    287  WORKING-STORAGE     756*     760       771
                                                                           780*    1120
GCic              WS-OS-Exe-Ext-CONST              288  WORKING-STORAGE    1140     1141
GCic              WS-OS-Lib-Ext-CONST              289  WORKING-STORAGE    1146     1147
GCic              WS-OS-Lib-Type-CONST             290  WORKING-STORAGE     614
GCic              WS-OS-OSX-BOOL                   302  WORKING-STORAGE    1224
GCic              WS-OS-Type-CD                    291  WORKING-STORAGE     806     1053C
GCic              WS-OS-Type-FILLER-TXT            304  WORKING-STORAGE     310
GCic              WS-OS-Type-TXT                   311  WORKING-STORAGE     806
GCic              WS-OS-Types-TXT                  310  WORKING-STORAGE
GCic              WS-OS-UNIX-BOOL                  301  WORKING-STORAGE    1124
GCic              WS-OS-Windows-BOOL               299  WORKING-STORAGE    1217     1238
GCic              WS-Output-Msg-TXT                314  WORKING-STORAGE     533      662*      809*
                                                                           896*     910*     1000*
                                                                          1015*    1016     1024*
                                                                          1032*    1044*    1050*
                                                                          1059*    1064*    1076*
                                                                          1167*    1168*    1262
GCic              WS-Path-Delimiter-CHR            316  WORKING-STORAGE
GCic              WS-PFN-CHR                       323  WORKING-STORAGE     788      795*      799*
GCic              WS-Pgm-Nm-TXT                    326  WORKING-STORAGE     792*     797*      994
                                                                          1133     1239     1242
GCic              WS-Prog-Extension-TXT            318  WORKING-STORAGE     793*     798*
GCic              WS-Prog-File-Name-TXT            322  WORKING-STORAGE     574      765*      770*
                                                                           786      792       796
                                                                           988
GCic              WS-Prog-Folder-TXT               320  WORKING-STORAGE     575      764*      769*
                                                                           773      774*      777C
                                                                          1093     1094     1098
                                                                          1103     1104     1109
                                                                          1115
GCic              WS-RS-1st-Prog-Complete-BOOL     339  WORKING-STORAGE    1180     1189*
GCic              WS-RS-Compile-Failed-BOOL        332  WORKING-STORAGE    1021*    1033
GCic              WS-RS-Compile-OK-BOOL            330  WORKING-STORAGE     684     1014*
GCic              WS-RS-Compile-OK-CHR             329  WORKING-STORAGE
GCic              WS-RS-Compile-OK-Warn-BOOL       331  WORKING-STORAGE     684
GCic              WS-RS-Complete-BOOL              334  WORKING-STORAGE     681     1019*
GCic              WS-RS-Complete-CHR               333  WORKING-STORAGE
GCic              WS-RS-Double-Quote-Used-BOOL     337  WORKING-STORAGE    1092*    1118*     1152
GCic              WS-RS-IDENT-DIV-CHR              338  WORKING-STORAGE
GCic              WS-RS-More-To-1st-Prog-BOOL      340  WORKING-STORAGE    1179*
GCic              WS-RS-No-Switch-Changes-BOOL     342  WORKING-STORAGE     818      899*
GCic              WS-RS-No-Switch-Chgs-CHR         341  WORKING-STORAGE
GCic              WS-RS-Not-Complete-BOOL          335  WORKING-STORAGE     680*
GCic              WS-RS-Output-File-Avail-BOOL     346  WORKING-STORAGE     690     1002*
GCic              WS-RS-Output-File-Busy-BOOL      345  WORKING-STORAGE
GCic              WS-RS-Output-File-Busy-CHR       344  WORKING-STORAGE
GCic              WS-RS-Quote-CHR                  336  WORKING-STORAGE
GCic              WS-RS-Source-Rec-Ident-BOOL      349  WORKING-STORAGE    1188     1194
GCic              WS-RS-Source-Rec-Ignored-BOOL    350  WORKING-STORAGE    1192*
```

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

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function  Defn  Where Defined   References      Page: 96
==============  ==============================  ======  ===============  ========================
GCic            WS-RS-Source-Rec-Linkage-BOOL    348 WORKING-STORAGE  1193   1204
GCic            WS-RS-Source-Record-Type-CHR     347 WORKING-STORAGE  1187C  1201C
GCic            WS-RS-Switch-Changes-BOOL        343 WORKING-STORAGE   817*
GCic            WS-RS-Switch-Error-CHR           351 WORKING-STORAGE
GCic            WS-RS-Switch-Is-Bad-BOOL         352 WORKING-STORAGE
GCic            WS-RS-Switch-Is-Good-BOOL        353 WORKING-STORAGE
GCic            WS-Runtime-Switches-TXT          328 WORKING-STORAGE
GCic            WS-Tally-QTY                     355 WORKING-STORAGE   968*   970*    972
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                       2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References        Page: 97
==============  ===============================  ======  ===============  ========================
LISTING         000-Main                         2410 PROCEDURE
LISTING         100-Initialization               2427 PROCEDURE          2411
LISTING         300-Tokenize-Source              2500 PROCEDURE          2418
LISTING         310-Get-Token                    2551 PROCEDURE          2509
LISTING         311-Control-Record               2711 PROCEDURE          2570
LISTING         312-Expanded-Src-Record          2757 PROCEDURE          2572
LISTING         313-Check-For-Numeric-Token      2768 PROCEDURE          2698
LISTING         320-IDENTIFICATION-DIVISION      2810 PROCEDURE          2530
LISTING         330-ENVIRONMENT-DIVISION         2830 PROCEDURE          2532
LISTING         340-DATA-DIVISION                2856 PROCEDURE          2534
LISTING         350-PROCEDURE-DIVISION           2912 PROCEDURE          2536
LISTING         351-ACCEPT                       2983 PROCEDURE          2939
LISTING         351-ADD                          2993 PROCEDURE          2941
LISTING         351-ALLOCATE                     3004 PROCEDURE          2943
LISTING         351-CALL                         3016 PROCEDURE          2945
LISTING         351-COMPUTE                      3027 PROCEDURE          2947
LISTING         351-DIVIDE                       3036 PROCEDURE          2949
LISTING         351-FREE                         3056 PROCEDURE          2951
LISTING         351-GENERATE                     3060 PROCEDURE          2953      2957      2973
LISTING         351-INITIALIZE                   3064 PROCEDURE          2955
LISTING         351-INITIATE                     3073 PROCEDURE
LISTING         351-INSPECT                      3077 PROCEDURE          2959
LISTING         351-MOVE                         3107 PROCEDURE          2961
LISTING         351-MULTIPLY                     3116 PROCEDURE          2963
LISTING         351-PERFORM                      3132 PROCEDURE          2965
LISTING         351-SET                          3145 PROCEDURE          2967
LISTING         351-STRING                       3154 PROCEDURE          2969
LISTING         351-SUBTRACT                     3165 PROCEDURE          2971
LISTING         351-TERMINATE                    3176 PROCEDURE
LISTING         351-TRANSFORM                    3180 PROCEDURE          2975
LISTING         351-UNSTRING                     3190 PROCEDURE          2977
LISTING         360-Release-Def                  3207 PROCEDURE          2846      2883      2886
                                                                        2889      2892      2895
                                                                        2930
LISTING         361-Release-Ref                  3218 PROCEDURE          2848      2852      2905
                                                                        2979      2989      3000
                                                                        3012      3032      3052
                                                                        3069      3103      3112
                                                                        3128      3141      3150
                                                                        3161      3172      3186
                                                                        3203
LISTING         362-Release-Upd                  3223 PROCEDURE          2898      2901      2986
                                                                        2996      2998      3007
                                                                        3010      3019      3021
                                                                        3030      3048      3050
                                                                        3057      3061      3067
                                                                        3074      3084      3110
                                                                        3126      3135      3138
                                                                        3148      3157      3159
                                                                        3168      3170      3177
                                                                        3183      3193      3195
                                                                        3197      3199      3201
LISTING         363-Set-Upd                      3228 PROCEDURE          3039      3119      3224
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 97
```

```
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
```

```
====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 98
```

```
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*
```

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

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 101
===============  ==============================  ======  ==============  ========================
LISTING          WS-GI-Token-TXT                 1507 WORKING-STORAGE   3282    3293*   3295
                                                                        3307
LISTING          WS-Group-Indicators-TXT         1505 WORKING-STORAGE   3265*
LISTING          WS-Held-Reference-TXT           1509 WORKING-STORAGE   2497*   2522    2523
                                                                        2524*   2559    2560
                                                                        2561*   3040*   3042
                                                                        3043    3044*   3081*
                                                                        3087    3088    3089*
                                                                        3095    3096    3097*
                                                                        3120*   3122    3123*
LISTING          WS-I-SUB                        1511 WORKING-STORAGE   2438*   2439    2440
                                                                        2442    2445*   2446
                                                                        2461*   2463    2464
                                                                        2465    2468    2721*
                                                                        2724    2735*   2737
                                                                        2738    2739    2742
                                                                        3266*   3300*   3312*
                                                                        3325*   3326    3328*
                                                                        3331    3333    3406*
LISTING          WS-J-SUB                        1513 WORKING-STORAGE   2462*   2466*   2468
                                                                        2736*   2740*   2742
LISTING          WS-Lines-Left-NUM               1515 WORKING-STORAGE   3267*   3276    3290
                                                                        3342    3396*   3407
                                                                        3451    3498    3502
                                                                        3529*   3563    3645*
                                                                        3652    3661    3668
                                                                        3677    3690
LISTING          WS-Lines-Per-Page-Env-TXT       1519 WORKING-STORAGE   2451*   2455*   2482
                                                                        2483
LISTING          WS-Lines-Per-Page-NUM           1517 WORKING-STORAGE   2484*   2487*   2489*
                                                                        2492    3396    3645
LISTING          WS-Main-Module-Name-TXT         1521 WORKING-STORAGE   2443*   2447*   2723
                                                                        3473
LISTING          WS-Next-Char-Is-Quote-BOOL      1524 WORKING-STORAGE   2623    2636
LISTING          WS-Next-CHR                     1523 WORKING-STORAGE   2583*   2626    2639
LISTING          WS-OS-Type-FILLER-TXT           1526 WORKING-STORAGE   1532
LISTING          WS-OS-Type-TXT                  1533 WORKING-STORAGE   2432
LISTING          WS-OS-Types-TXT                 1532 WORKING-STORAGE
LISTING          WS-Page-No-TXT                  1538 WORKING-STORAGE   3348C   3363    3386
                                                                        3417    3432    3575
                                                                        3595    3605C   3619
                                                                        3638
LISTING          WS-Page-NUM                     1536 WORKING-STORAGE   2428*   3344*   3346
                                                                        3564    3601*   3603
LISTING          WS-PN-Literal-TXT               1539 WORKING-STORAGE   3345*   3602*
LISTING          WS-PN-Page-NUM                  1540 WORKING-STORAGE   3346*   3347C   3603*
                                                                        3604C
LISTING          WS-Program-Path-TXT             1542 WORKING-STORAGE   2459*   2460C   3357
                                                                        3380    3614    3633
LISTING          WS-Reserved-Word-Table-TXT      2299 WORKING-STORAGE
LISTING          WS-Reserved-Word-TXT            2300 WORKING-STORAGE   2688
LISTING          WS-Reserved-Words-TXT           1544 WORKING-STORAGE   2299
LISTING          WS-RS-Duplicate-CHR             2308 WORKING-STORAGE   3268*   3283*   3298*
```

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

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

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

```
===================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 104
```

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:
    - `ACCEPT FROM ENVIRONMENT` statement
    - `INSPECT` statement
    - `STRING` statement
- Using the following built-in subroutines:
    - `C$PARAMSIZE` built-in system subroutine
    - `CBL_CLOSE_FILE` built-in system subroutine
    - `CBL_DELETE_FILE` built-in system subroutine
    - `CBL_EXIT_PROC` built-in system subroutine
    - `CBL_OPEN_FILE` built-in system subroutine
    - `CBL_READ_FILE` built-in system subroutine
    - `CBL_WRITE_FILE` built-in system subroutine
- Using the following intrinsic functions:
    - `RANDOM` intrinsic function
    - `TRIM` intrinsic function

First, here is the STREAMIOcb.cpy copybook:

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

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

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

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

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

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

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                               Page: 4
======  ================================================================================
   148      *>                                                              **
   149      *>        This function invokes a standard CBL_READ_FILE against  **
   150      *>        the file specified in the control block (see           **
   151      *>        SCB-Filename-TXT).                                      **
   152      *>                                                              **
   153      *>        The buffer into which you wish to read data must be    **
   154      *>        supplied as "arg2".  The size of that buffer, in bytes, **
   155      *>        will define the "byte-count" value supplied to the     **
   156      *>        CBL_READ_FILE subroutine.  The buffer data item will be **
   157      *>        set to SPACES before the read takes place.             **
   158      *>                                                              **
   159      *>        If the file-offset value (SCB-Offset-NUM) is greater   **
   160      *>        than the size of the file, a "no more data" return code **
   161      *>        (01) will be passed back in SCB-Return-CD and the      **
   162      *>        buffer will have been set to SPACES.                   **
   163      *>                                                              **
   164      *>        At the conclusion of a successful SCB-Func-READ-BOOL,  **
   165      *>        the value of SCB-Offset-NUM will have been automati-   **
   166      *>        cally incremented by the byte-count size of "arg2".    **
   167      *>                                                              **
   168      *> SCB-Func-WRITE-BOOL                                          **
   169      *>                                                              **
   170      *>        This function invokes a standard CBL_WRITE_FILE against **
   171      *>        the file specified in the control block (see           **
   172      *>        SCB-Filename-TXT).                                      **
   173      *>                                                              **
   174      *>        The buffer from which data will be written to the file **
   175      *>        must be supplied as "arg2".  The size of that buffer,  **
   176      *>        in bytes, will define the "byte-count" value supplied  **
   177      *>        CBL_WRITE_FILE subroutine.  The buffer data will be    **
   178      *>        written to the file-offset position defined by the     **
   179      *>        SCB-Offset-NUM value.  You may specify "arg2" either    **
   180      *>        as an actual alphanumeric data item or as an alpha-    **
   181      *>        numeric literal.                                       **
   182      *>                                                              **
   183      *>        If the file-offset value (SCB-Offset-NUM) is greater   **
   184      *>        than the size of the file, a "no more data" return code **
   185      *>        will be passed back in SCB-Return-CD and the buffer    **
   186      *>        will have been set to SPACES.                          **
   187      *>                                                              **
   188      *>        At the conclusion of a successful SCB-Func-WRITE-BOOL  **
   189      *>        operation, the value of SCB-Offset-NUM will have been  **
   190      *>        automatically incremented by the byte-count size of    **
   191      *>        "arg2".                                                **
   192      *>                                                              **
   193      *> SCB-Func-READ-Delim-BOOL                                     **
   194      *>                                                              **
   195      *>        SCB-Func-READ-Delim-BOOL bahaves like the SCB-FUNC-    **
   196      *>        READ function, with the following behavioral dif-      **
======  ================================================================================
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/STREAMIO.cbl
Line    Statement                                                          Page: 5
======  ==================================================================================
   197      *>     ferences:                                      **
   198      *>                                                     **
   199      *>     1. When data is read from the file, only that data read **
   200      *>        up to BUT NOT INCLUDING an end-of-line delimiter      **
   201      *>        sequence (either a LF or CRLF) will be retained in    **
   202      *>        the buffer - the remainder of the buffer from the     **
   203      *>        end-of-line sequence onward will be reset to SPACES.  **
   204      *>        The file-offset value (SCB-Offset-NUM) will be in-    **
   205      *>        cremented ONLY by the amount of data transferred up   **
   206      *>        to AND INCLUDING the end-of-line sequence.            **
   207      *>                                                     **
   208      *>     2. When data is read from the file and an end-of-line    **
   209      *>        delimiter sequence (either a LF or a CRLF) cannot be  **
   210      *>        found within the buffer, the assumption is made that  **
   211      *>        the record is too long to fit within the buffer.  In  **
   212      *>        these instances, an SCB-Return-CD value of 02 will    **
   213      *>        be returned and the SCB-Offset-NUM value will be      **
   214      *>        incremented past the next end-of-line sequence in     **
   215      *>        the file (this will involve at least one additional   **
   216      *>        call to CBL_READ_FILE to locate that eol sequence,    **
   217      *>        but any additional such reads will be done internal-  **
   218      *>        ly to STREAMIO and will be entirely transparent to    **
   219      *>        the caller of STREAMIO.                      **
   220      *>                                                     **
   221      *>        DO NOT USE the Streamio-READ-Delim function if the    **
   222      *>        possibility exists that linefeed (X"0A") or carriage- **
   223      *>        return (X"0D") characters could exist as actual data  **
   224      *>        characters in the file.                      **
   225      *>                                                     **
   226      *> SCB-Func-WRITE-Delim-BOOL                           **
   227      *>                                                     **
   228      *>        SCB-Func-WRITE-Delim-BOOL acts like the Streamio-     **
   229      *>        FUNC-WRITE function, with the following difference:   **
   230      *>                                                     **
   231      *>        After the specified data is written to the file, an   **
   232      *>        end-of-line sequence will also be written to the file. **
   233      *>        The file-offset value (SCB-Value) will be incremented **
   234      *>        by the byte-count size of the data PLUS the size of the **
   235      *>        end-of-line sequence.  One of two possible end-of-line **
   236      *>        sequences must be specified using the value of SCB-   **
   237      *>        Delimter-Mode.                               **
   238      *>                                                     **
   239      *>---------------------------------------------------------------**
   240      *> SCB-Delimiter-Mode-CD                               **
   241      *>---------------------------------------------------------------**
   242      *>                                                     **
   243      *> This data item is needed only when issuing the Streamio-     **
   244      *> FUNC-WRITE-Delim function.  In those circumstances, this     **
   245      *> item defines what end-of-line delimiter sequence is to be    **

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

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                     2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                             Page: 7
======  ================================================================================
   295        *> copybook.                                            **
   296        *>                                                      **
   297        *>-------------------------------------------------------**
   298        *> SCB-Return-CD                                        **
   299        *>-------------------------------------------------------**
   300        *>                                                      **
   301        *> The following are the possible SCB-Return-CD values.  The  **
   302        *> ones marked with a ">" will NOT trigger an error-routine, if **
   303        *> one is currently registered via SCB-Error-Routine-PTR.     **
   304        *>                                                      **
   305        *>    12 I/O error writing to file                      **
   306        *>    11 File does not exist                            **
   307        *>    10 File already OPEN or already CLOSEd             **
   308        *> > 02 READ-Delim was truncated                        **
   309        *> > 01 No more data is available from the current       **
   310        *>        SCB-Offset-NUM                                 **
   311        *> > 00 OK - the operation was successful                **
   312        *>    -1 Invalid SCB-Function-CD                         **
   313        *>    -2 Invalid SCB-Mode-CD                             **
   314        *>    -3 CBL_xxxxx_FILE routine rejected operation        **
   315        *>    -4 Invalid delimiter mode specified (Not U/W)       **
   316        *>                                                      **
   317        *>-------------------------------------------------------**
   318        *> SCB-Filename-TXT                                      **
   319        *>-------------------------------------------------------**
   320        *>                                                      **
   321        *> This is the name of the file you wish to access.      **
   322        *>                                                      **
   323        *> If you are planning on reading the file, the file MUST exist **
   324        *> at the time the SCB-Func-OPEN-BOOL is executed.        **
   325        *>                                                      **
   326        *> If you are planning on writing to the file, the file need **
   327        *> exist when the SCB-Func-OPEN-BOOL is issued.          **
   328        *>                                                      **
   329        *> In general, the contents of SCB-Filename-TXT should re- **
   330        *> flect the complete path to the file as well as the name of **
   331        *> the file itself, unless the file is contained in whatever **
   332        *> directory is current at the time the SCB-Func-OPEN-BOOL is **
   333        *> executed.                                            **
   334        *>                                                      **
   335        *> The following special values may be used for          **
   336        *> SCB-Filename-TXT:                                     **
   337        *>                                                      **
   338        *> SPACES If the filename is SPACES, a filename will be created **
   339        *>        automatically for you in whatever directory is de- **
   340        *>        fined by the TEMP environment variable.  If there IS **
   341        *>        no TEMP variable defined, the "/tmp" folder will be **
   342        *>        assumed.  The filename will be STREAMIO-nnnnnnnn.dat **
   343        *>        where "nnnnnnnn" is a random number.            **

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

```
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

==

```
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
```

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

==

```
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.
`https://fsf.org/`

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

0. PREAMBLE

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

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

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

1. APPLICABILITY AND DEFINITIONS

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

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

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

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

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

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

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

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

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

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

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

2. VERBATIM COPYING

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

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

3. COPYING IN QUANTITY

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

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

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

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

4. MODIFICATIONS

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

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

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

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

D. Preserve all the copyright notices of the Document.

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

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

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

H. Include an unaltered copy of this License.

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

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

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

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

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

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

O. Preserve any Warranty Disclaimers.

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

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

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

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

5. COMBINING DOCUMENTS

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

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

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

6. COLLECTIONS OF DOCUMENTS

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

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

7. AGGREGATION WITH INDEPENDENT WORKS

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

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

8. TRANSLATION

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

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

9. TERMINATION

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

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

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

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

10. FUTURE REVISIONS OF THIS LICENSE

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

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

11. RELICENSING

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

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

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

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

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