GnuCOBOL Sample Programs

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

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

Table of Contents

1. FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

2. COBDUMP

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

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

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

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

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

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

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)   **

==

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

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


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```

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

==

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

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

3. Colors

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

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

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

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

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

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

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

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

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:17
    109   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
    110   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
    111   05 LINE + 1.
    112   10 COL 2   BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT VALUE ’X’.
    113   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT VALUE ’X’.
    114   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT VALUE ’X’.
    115   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT VALUE ’X’.
    116   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT VALUE ’X’.
    117   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT VALUE ’X’.
    118   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
    119   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
    120   05 LINE + 1.
    121   10 COL 2   BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT VALUE ’X’.
    122   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT VALUE ’X’.
    123   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT VALUE ’X’.
    124   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT VALUE ’X’.
    125   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT VALUE ’X’.
    126   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT VALUE ’X’.
    127   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT VALUE ’X’.
    128   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT VALUE ’X’.
    129   *> #2
    130   05 LINE 05.
    131   10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 VALUE ’X’.
    132   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 VALUE ’X’.
    133   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 VALUE ’X’.
    134   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 VALUE ’X’.
    135   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 VALUE ’X’.
    136   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 VALUE ’X’.
    137   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 VALUE ’X’.
    138   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 VALUE ’X’.
    139   05 LINE + 1.
    140   10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 VALUE ’X’.
    141   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 VALUE ’X’.
    142   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 VALUE ’X’.
    143   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 VALUE ’X’.
    144   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 VALUE ’X’.
    145   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 VALUE ’X’.
    146   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 VALUE ’X’.
    147   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 VALUE ’X’.
    148   05 LINE + 1.
    149   10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 VALUE ’X’.
    150   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 VALUE ’X’.
    151   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 VALUE ’X’.
    152   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 VALUE ’X’.
    153   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 VALUE ’X’.
    154   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 VALUE ’X’.
    155   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 VALUE ’X’.
    156   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 VALUE ’X’.
    157   05 LINE + 1.
    158   10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 VALUE ’X’.
    159   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 VALUE ’X’.
    160   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 VALUE ’X’.
    161   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 VALUE ’X’.
    162   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 VALUE ’X’.
```

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

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

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

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

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

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

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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'.
```

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

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

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:19
   541   10 COL 02  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   542   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   543   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   544   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   545   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   546   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   547   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   548   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   549   05 LINE + 1.
   550   10 COL 02  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   551   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   552   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   553   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   554   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   555   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   556   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   557   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   558   05 LINE + 1.
   559   10 COL 02  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   560   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   561   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   562   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   563   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   564   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   565   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   566   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   567   *> #8
   568   05 LINE 17.
   569   10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   570   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   571   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   572   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   573   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   574   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   575   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   576   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   577   05 LINE + 1.
   578   10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   579   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   580   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   581   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   582   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   583   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   584   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   585   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   586   05 LINE + 1.
   587   10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   588   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   589   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   590   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   591   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   592   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   593   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   594   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
```

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

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

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

```
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
```

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

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

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

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

5. GCic

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

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

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

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

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

- Creating a GnuCOBOL compilation unit that consists of multiple programs
- Using CDF conditional compilation facilities
- Using the `SCREEN SECTION` and associated `ACCEPT` and `DISPLAY` statements
- Using `DECLARATIVES` to trap file I/O errors
- Using `FILE-STATUS`
- Using the `REPLACING` clause on a CDF `COPY` statement
- Using the following statements:
    - o `ACCEPT FROM COMMAND-LINE` statement
    - o `ACCEPT FROM DATE/TIME` statement
    - o `ACCEPT FROM ENVIRONMENT` statement
    - o `EXIT PERFORM` statement
    - o `EXIT SECTION` statement
    - o `INSPECT` statement
    - o `PERFORM FOREVER` statement
    - o `SEARCH ALL` statement
    - o `SET ENVIRONMENT` statement
    - o `SORT` statement
    - o `STRING` statement
    - o `UNSTRING` statement

- Using the following built-in subroutines:
    - o `C$JUSTIFY` built-in system subroutine
    - o `C$SLEEP` built-in system subroutine
    - o `CBL_CHANGE_DIR` built-in system subroutine
    - o `CBL_CHECK_FILE_EXIST` built-in system subroutine
    - o `CBL_DELETE_FILE` built-in system subroutine
    - o `SYSTEM` built-in system subroutine
- Using the following intrinsic functions:
    - o `CONCATENATE` intrinsic function
    - o `LENGTH` intrinsic function
    - o `LOWER-CASE` intrinsic function
    - o `NUMVAL` intrinsic function
    - o `TRIM` intrinsic function
    - o `UPPER-CASE` intrinsic function
- Using the `COB-CRT-STATUS,``Special Registers` special register
- Programmatically producing a report destined for either portrait or landscape printing

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

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

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

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

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

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

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

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

====== ===
        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.

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                      Page: 11
====== ========================================================================

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

```
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.
```

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

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

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

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

==

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

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

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

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

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

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

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

```
============================================================================================
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        *>***************************************************************
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

```
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 ' '.
```

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

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

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

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

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

```
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'.
```

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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.
```

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GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 37
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GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 38
====== ===============================================================================
 1527           05 VALUE 'Windows'                 PIC X(14).
 1528           05 VALUE 'Windows/Cygwin'          PIC X(14).
 1529           05 VALUE 'UNIX/Linux'              PIC X(14).
 1530           05 VALUE 'OSX'                     PIC X(14).
 1531           05 VALUE 'Windows/MinGW'           PIC X(14).
 1532        01 WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
 1533           05 WS-OS-Type-TXT                  PIC X(14)
 1534                                     OCCURS 5 TIMES .
 1535
 1536 GC0712 01  WS-Page-NUM                       USAGE BINARY-LONG.
 1537
 1538 GC0712 01  WS-Page-No-TXT.
 1539 GC0712     05 WS-PN-Literal-TXT              PIC X(6).
 1540 GC0712     05 WS-PN-Page-NUM                 PIC Z(3)9.
 1541
 1542 GC1213 01  WS-Program-Path-TXT              PIC X(135).
 1543
 1544        01  WS-Reserved-Words-TXT.
 1545           05 VALUE '                         ' PIC X(33).
 1546 GC1213     05 VALUE 'FABS                    ' PIC X(33).
 1547           05 VALUE 'VACCEPT                  ' PIC X(33).
 1548           05 VALUE ' ACCESS                  ' PIC X(33).
 1549 GC1213     05 VALUE 'FACOS                   ' PIC X(33).
 1550           05 VALUE ' ACTIVE-CLASS            ' PIC X(33).      UNIMPLEMENTED
 1551           05 VALUE 'VADD                     ' PIC X(33).
 1552           05 VALUE ' ADDRESS                 ' PIC X(33).
 1553           05 VALUE ' ADVANCING               ' PIC X(33).
 1554           05 VALUE 'KAFTER                   ' PIC X(33).
 1555           05 VALUE ' ALIGNED                 ' PIC X(33).      UNIMPLEMENTED
 1556           05 VALUE ' ALL                     ' PIC X(33).
 1557           05 VALUE 'VALLOCATE                ' PIC X(33).
 1558           05 VALUE ' ALPHABET                ' PIC X(33).
 1559           05 VALUE ' ALPHABETIC              ' PIC X(33).
 1560           05 VALUE ' ALPHABETIC-LOWER        ' PIC X(33).
 1561           05 VALUE ' ALPHABETIC-UPPER        ' PIC X(33).
 1562           05 VALUE ' ALPHANUMERIC            ' PIC X(33).
 1563           05 VALUE ' ALPHANUMERIC-EDITED     ' PIC X(33).
 1564           05 VALUE ' ALSO                    ' PIC X(33).
 1565           05 VALUE 'VALTER                   ' PIC X(33).
 1566           05 VALUE ' ALTERNATE               ' PIC X(33).
 1567           05 VALUE ' AND                     ' PIC X(33).
 1568 GC1213     05 VALUE 'FANNUITY                ' PIC X(33).
 1569           05 VALUE ' ANY                     ' PIC X(33).
 1570           05 VALUE ' ANYCASE                 ' PIC X(33).      UNIMPLEMENTED
 1571           05 VALUE ' ARE                     ' PIC X(33).
 1572           05 VALUE ' AREA                    ' PIC X(33).
 1573           05 VALUE ' AREAS                   ' PIC X(33).
 1574           05 VALUE ' ARGUMENT-NUMBER         ' PIC X(33).
 1575           05 VALUE ' ARGUMENT-VALUE          ' PIC X(33).
 1576           05 VALUE ' ARITHMETIC              ' PIC X(33).      UNIMPLEMENTED
 1577           05 VALUE ' AS                      ' PIC X(33).
 1578           05 VALUE ' ASCENDING               ' PIC X(33).
 1579           05 VALUE ' ASCII                   ' PIC X(33).
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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).
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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).
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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).
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GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 42
====== =========================================================================
 1739            05 VALUE 'KDIVISION                   ' PIC X(33).
 1740            05 VALUE 'KDOWN                       ' PIC X(33).
 1741            05 VALUE ' DUPLICATES                 ' PIC X(33).
 1742            05 VALUE ' DYNAMIC                    ' PIC X(33).
 1743 GC1213     05 VALUE 'FE                          ' PIC X(33).
 1744            05 VALUE ' EBCDIC                     ' PIC X(33).
 1745 GC0712     05 VALUE ' EC                         ' PIC X(33).
 1746            05 VALUE ' EGI                        ' PIC X(33).    OBSOLETE
 1747            05 VALUE 'VELSE                       ' PIC X(33).
 1748            05 VALUE ' EMI                        ' PIC X(33).    OBSOLETE
 1749            05 VALUE ' EMPTY-CHECK                ' PIC X(33).
 1750            05 VALUE 'VENABLE                     ' PIC X(33).    OBSOLETE
 1751 GC0710     05 VALUE 'KEND                        ' PIC X(33).
 1752            05 VALUE ' END-ACCEPT                 ' PIC X(33).
 1753            05 VALUE ' END-ADD                    ' PIC X(33).
 1754            05 VALUE ' END-CALL                   ' PIC X(33).
 1755            05 VALUE ' END-CHAIN                  ' PIC X(33).    UNIMPLEMENTED
 1756            05 VALUE ' END-COMPUTE                ' PIC X(33).
 1757            05 VALUE ' END-DELETE                 ' PIC X(33).
 1758            05 VALUE ' END-DISPLAY                ' PIC X(33).
 1759            05 VALUE ' END-DIVIDE                 ' PIC X(33).
 1760            05 VALUE ' END-EVALUATE               ' PIC X(33).
 1761            05 VALUE ' END-IF                     ' PIC X(33).
 1762            05 VALUE ' END-MULTIPLY               ' PIC X(33).
 1763            05 VALUE ' END-OF-PAGE                ' PIC X(33).
 1764            05 VALUE ' END-PERFORM                ' PIC X(33).
 1765            05 VALUE ' END-READ                   ' PIC X(33).
 1766            05 VALUE ' END-RECEIVE                ' PIC X(33).    OBSOLETE
 1767            05 VALUE ' END-RETURN                 ' PIC X(33).
 1768            05 VALUE ' END-REWRITE                ' PIC X(33).
 1769            05 VALUE ' END-SEARCH                 ' PIC X(33).
 1770            05 VALUE ' END-START                  ' PIC X(33).
 1771            05 VALUE ' END-STRING                 ' PIC X(33).
 1772            05 VALUE ' END-SUBTRACT               ' PIC X(33).
 1773            05 VALUE ' END-UNSTRING               ' PIC X(33).
 1774            05 VALUE ' END-WRITE                  ' PIC X(33).
 1775            05 VALUE 'VENTRY                      ' PIC X(33).
 1776            05 VALUE ' ENTRY-CONVENTION           ' PIC X(33).    UNIMPLEMENTED
 1777            05 VALUE 'KENVIRONMENT                ' PIC X(33).
 1778            05 VALUE ' ENVIRONMENT-NAME           ' PIC X(33).
 1779            05 VALUE ' ENVIRONMENT-VALUE          ' PIC X(33).
 1780            05 VALUE ' EO                         ' PIC X(33).    UNIMPLEMENTED
 1781            05 VALUE ' EOL                        ' PIC X(33).
 1782            05 VALUE ' EOP                        ' PIC X(33).
 1783            05 VALUE ' EOS                        ' PIC X(33).
 1784            05 VALUE ' EQUAL                      ' PIC X(33).
 1785            05 VALUE 'KEQUALS                     ' PIC X(33).
 1786            05 VALUE ' ERASE                      ' PIC X(33).
 1787            05 VALUE ' ERROR                      ' PIC X(33).
 1788            05 VALUE ' ESCAPE                     ' PIC X(33).
 1789            05 VALUE ' ESI                        ' PIC X(33).    OBSOLETE
 1790            05 VALUE 'VEVALUATE                   ' PIC X(33).
 1791            05 VALUE ' EXCEPTION                  ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 43
====== =========================================================================
 1792 GC1213     05 VALUE 'FEXCEPTION-FILE           ' PIC X(33).
 1793 GC1213     05 VALUE 'FEXCEPTION-FILE-N         ' PIC X(33).    UNIMPLEMENTED
 1794 GC1213     05 VALUE 'FEXCEPTION-LOCATION       ' PIC X(33).
 1795 GC1213     05 VALUE 'FEXCEPTION-LOCATION-N     ' PIC X(33).    UNIMPLEMENTED
 1796         05 VALUE ' EXCEPTION-OBJECT          ' PIC X(33).    UNIMPLEMENTED
 1797 GC1213     05 VALUE 'FEXCEPTION-STATEMENT      ' PIC X(33).
 1798 GC1213     05 VALUE 'FEXCEPTION-STATUS         ' PIC X(33).
 1799         05 VALUE ' EXCLUSIVE                 ' PIC X(33).
 1800         05 VALUE 'VEXIT                      ' PIC X(33).
 1801 GC1213     05 VALUE 'FEXP                      ' PIC X(33).
 1802 GC1213     05 VALUE 'FEXP10                    ' PIC X(33).
 1803         05 VALUE ' EXPANDS                   ' PIC X(33).    UNIMPLEMENTED
 1804         05 VALUE ' EXTEND                    ' PIC X(33).
 1805         05 VALUE ' EXTERNAL                  ' PIC X(33).
 1806 GC1213     05 VALUE 'FFACTORIAL                ' PIC X(33).
 1807         05 VALUE ' FACTORY                   ' PIC X(33).    UNIMPLEMENTED
 1808         05 VALUE ' FALSE                     ' PIC X(33).
 1809         05 VALUE 'KFD                        ' PIC X(33).
 1810         05 VALUE 'KFILE                      ' PIC X(33).
 1811         05 VALUE ' FILE-CONTROL              ' PIC X(33).
 1812         05 VALUE ' FILE-ID                   ' PIC X(33).
 1813 GC1113     05 VALUE ' FILLER                    ' PIC X(33).
 1814         05 VALUE ' FINAL                     ' PIC X(33).
 1815         05 VALUE ' FIRST                     ' PIC X(33).
 1816 GC0712     05 VALUE ' FLOAT-BINARY-128          ' PIC X(33).    UNIMPLEMENTED
 1817 GC0712     05 VALUE ' FLOAT-BINARY-32           ' PIC X(33).    UNIMPLEMENTED
 1818 GC0712     05 VALUE ' FLOAT-BINARY-64           ' PIC X(33).    UNIMPLEMENTED
 1819         05 VALUE ' FLOAT-DECIMAL-16          ' PIC X(33).
 1820         05 VALUE ' FLOAT-DECIMAL-34          ' PIC X(33).
 1821         05 VALUE ' FLOAT-EXTENDED            ' PIC X(33).    UNIMPLEMENTED
 1822 GC0712     05 VALUE ' FLOAT-INFINITY            ' PIC X(33).    UNIMPLEMENTED
 1823         05 VALUE ' FLOAT-LONG                ' PIC X(33).
 1824 GC0712     05 VALUE ' FLOAT-NOT-A-NUMBER        ' PIC X(33).    UNIMPLEMENTED
 1825         05 VALUE ' FLOAT-SHORT               ' PIC X(33).
 1826         05 VALUE ' FOOTING                   ' PIC X(33).
 1827         05 VALUE ' FOR                       ' PIC X(33).
 1828         05 VALUE ' FOREGROUND-COLOR          ' PIC X(33).
 1829         05 VALUE ' FOREGROUND-COLOUR         ' PIC X(33).
 1830 GC0711     05 VALUE ' FOREVER                   ' PIC X(33).
 1831         05 VALUE ' FORMAT                    ' PIC X(33).    UNIMPLEMENTED
 1832 GC1213     05 VALUE 'FFORMATTED-CURRENT-DATE    ' PIC X(33).    UNIMPLEMENTED
 1833 GC1213     05 VALUE 'FFORMATTED-DATE            ' PIC X(33).    UNIMPLEMENTED
 1834 GC1213     05 VALUE 'FFORMATTED-DATETIME        ' PIC X(33).    UNIMPLEMENTED
 1835 GC1213     05 VALUE 'FFORMATTED-TIME            ' PIC X(33).    UNIMPLEMENTED
 1836         05 VALUE 'MFORMFEED                  ' PIC X(33).
 1837 GC1213     05 VALUE 'FFRACTION-PART             ' PIC X(33).
 1838         05 VALUE 'VFREE                      ' PIC X(33).
 1839         05 VALUE ' FROM                      ' PIC X(33).
 1840         05 VALUE ' FULL                      ' PIC X(33).
 1841         05 VALUE ' FUNCTION                  ' PIC X(33).
 1842 GC0712     05 VALUE 'KFUNCTION-ID               ' PIC X(33).
 1843         05 VALUE ' FUNCTION-POINTER          ' PIC X(33).    UNIMPLEMENTED
 1844         05 VALUE 'VGENERATE                  ' PIC X(33).
```

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

```
===============================================================================================
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).
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```
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).
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GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 46
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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
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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                  Page: 48
====== ================================================================================
 2057 GC1213     05 VALUE 'FRANDOM                       ' PIC X(33).
 2058 GC1213     05 VALUE 'FRANGE                        ' PIC X(33).
 2059 GC1213     05 VALUE 'KRD                           ' PIC X(33).
 2060           05 VALUE 'VREAD                          ' PIC X(33).
 2061           05 VALUE 'VREADY                         ' PIC X(33).
 2062           05 VALUE 'VRECEIVE                       ' PIC X(33).    OBSOLETE
 2063           05 VALUE ' RECORD                        ' PIC X(33).
 2064           05 VALUE ' RECORDING                     ' PIC X(33).
 2065           05 VALUE ' RECORDS                       ' PIC X(33).
 2066           05 VALUE ' RECURSIVE                     ' PIC X(33).
 2067           05 VALUE 'KREDEFINES                     ' PIC X(33).
 2068           05 VALUE ' REEL                          ' PIC X(33).
 2069 GC0712     05 VALUE 'AREFERENCE                    ' PIC X(33).
 2070           05 VALUE ' REFERENCES                    ' PIC X(33).
 2071           05 VALUE ' RELATION                      ' PIC X(33).    UNIMPLEMENTED
 2072           05 VALUE ' RELATIVE                      ' PIC X(33).
 2073           05 VALUE 'VRELEASE                       ' PIC X(33).
 2074 GC1213     05 VALUE 'FREM                          ' PIC X(33).
 2075           05 VALUE ' REMAINDER                     ' PIC X(33).
 2076           05 VALUE ' REMARKS                       ' PIC X(33).    OBSOLETE
 2077           05 VALUE ' REMOVAL                       ' PIC X(33).
 2078           05 VALUE 'KRENAMES                       ' PIC X(33).
 2079           05 VALUE ' REPLACE                       ' PIC X(33).
 2080           05 VALUE 'KREPLACING                     ' PIC X(33).
 2081           05 VALUE 'KREPORT                        ' PIC X(33).
 2082           05 VALUE ' REPORTING                     ' PIC X(33).
 2083           05 VALUE ' REPORTS                       ' PIC X(33).
 2084           05 VALUE ' REPOSITORY                    ' PIC X(33).
 2085           05 VALUE ' REQUIRED                      ' PIC X(33).
 2086           05 VALUE ' RESERVE                       ' PIC X(33).
 2087           05 VALUE 'VRESET                         ' PIC X(33).
 2088           05 VALUE ' RESUME                        ' PIC X(33).    UNIMPLEMENTED
 2089           05 VALUE ' RETRY                         ' PIC X(33).    UNIMPLEMENTED
 2090           05 VALUE 'VRETURN                        ' PIC X(33).
 2091           05 VALUE 'IRETURN-CODE                   ' PIC X(33).
 2092           05 VALUE 'KRETURNING                     ' PIC X(33).
 2093 GC1213     05 VALUE 'FREVERSE                      ' PIC X(33).
 2094           05 VALUE ' REVERSE-VIDEO                 ' PIC X(33).
 2095           05 VALUE ' REVERSED                      ' PIC X(33).
 2096           05 VALUE ' REWIND                        ' PIC X(33).
 2097           05 VALUE 'VREWRITE                       ' PIC X(33).
 2098           05 VALUE ' RF                            ' PIC X(33).
 2099           05 VALUE ' RH                            ' PIC X(33).
 2100           05 VALUE ' RIGHT                         ' PIC X(33).
 2101           05 VALUE ' RIGHT-JUSTIFY                 ' PIC X(33).    UNIMPLEMENTED
 2102           05 VALUE 'VROLLBACK                      ' PIC X(33).
 2103           05 VALUE ' ROUNDED                       ' PIC X(33).
 2104           05 VALUE ' ROUNDING                      ' PIC X(33).    UNIMPLEMENTED
 2105           05 VALUE ' RUN                           ' PIC X(33).
 2106           05 VALUE ' SAME                          ' PIC X(33).
 2107           05 VALUE 'KSCREEN                        ' PIC X(33).
 2108           05 VALUE ' SCROLL                        ' PIC X(33).
 2109           05 VALUE 'KSD                            ' PIC X(33).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 49
====== ===============================================================================
 2110           05 VALUE 'VSEARCH                   ' PIC X(33).
 2111           05 VALUE ' SECONDS                  ' PIC X(33).      UNIMPLEMENTED
 2112 GC1213    05 VALUE 'FSECONDS-FROM-FORMATTED-TIME ' PIC X(33).
 2113 GC1213    05 VALUE 'FSECONDS-PAST-MIDNIGHT    ' PIC X(33).
 2114           05 VALUE 'KSECTION                  ' PIC X(33).
 2115           05 VALUE ' SECURE                   ' PIC X(33).
 2116           05 VALUE ' SECURITY                 ' PIC X(33).      OBSOLETE
 2117           05 VALUE ' SEGMENT                  ' PIC X(33).      OBSOLETE
 2118           05 VALUE ' SEGMENT-LIMIT            ' PIC X(33).
 2119           05 VALUE ' SELECT                   ' PIC X(33).
 2120           05 VALUE ' SELF                     ' PIC X(33).      UNIMPLEMENTED
 2121           05 VALUE 'VSEND                     ' PIC X(33).      OBSOLETE
 2122           05 VALUE ' SENTENCE                 ' PIC X(33).
 2123           05 VALUE ' SEPARATE                 ' PIC X(33).
 2124           05 VALUE ' SEQUENCE                 ' PIC X(33).
 2125           05 VALUE ' SEQUENTIAL               ' PIC X(33).
 2126           05 VALUE 'VSET                      ' PIC X(33).
 2127           05 VALUE ' SHARING                  ' PIC X(33).
 2128 GC1213    05 VALUE 'FSIGN                     ' PIC X(33).
 2129           05 VALUE ' SIGNED                   ' PIC X(33).
 2130           05 VALUE ' SIGNED-INT               ' PIC X(33).
 2131           05 VALUE ' SIGNED-LONG              ' PIC X(33).
 2132           05 VALUE ' SIGNED-SHORT             ' PIC X(33).
 2133 GC1213    05 VALUE 'FSIN                      ' PIC X(33).
 2134           05 VALUE ' SIZE                     ' PIC X(33).
 2135           05 VALUE 'VSORT                     ' PIC X(33).
 2136           05 VALUE ' SORT-MERGE               ' PIC X(33).
 2137           05 VALUE 'ISORT-RETURN              ' PIC X(33).
 2138           05 VALUE ' SOURCE                   ' PIC X(33).
 2139           05 VALUE ' SOURCE-COMPUTER          ' PIC X(33).
 2140           05 VALUE ' SOURCES                  ' PIC X(33).      UNIMPLEMENTED
 2141           05 VALUE ' SPACE                    ' PIC X(33).
 2142           05 VALUE ' SPACE-FILL               ' PIC X(33).      UNIMPLEMENTED
 2143           05 VALUE ' SPACES                   ' PIC X(33).
 2144           05 VALUE ' SPECIAL-NAMES            ' PIC X(33).
 2145 GC1213    05 VALUE 'FSQRT                     ' PIC X(33).
 2146           05 VALUE ' STANDARD                 ' PIC X(33).
 2147           05 VALUE ' STANDARD-1               ' PIC X(33).
 2148           05 VALUE ' STANDARD-2               ' PIC X(33).
 2149           05 VALUE ' STANDARD-BINARY          ' PIC X(33).      UNIMPLEMENTED
 2150 GC1213    05 VALUE 'FSTANDARD-COMPARE         ' PIC X(33).      UNIMPLEMENTED
 2151           05 VALUE ' STANDARD-DECIMAL         ' PIC X(33).      UNIMPLEMENTED
 2152 GC1213    05 VALUE 'FSTANDARD-DEVIATION       ' PIC X(33).
 2153           05 VALUE 'VSTART                    ' PIC X(33).
 2154           05 VALUE ' STATEMENT                ' PIC X(33).      UNIMPLEMENTED
 2155           05 VALUE ' STATIC                   ' PIC X(33).
 2156           05 VALUE ' STATUS                   ' PIC X(33).
 2157           05 VALUE ' STDCALL                  ' PIC X(33).
 2158           05 VALUE 'MSTDERR                   ' PIC X(33).
 2159           05 VALUE 'MSTDIN                    ' PIC X(33).
 2160           05 VALUE 'MSTDOUT                   ' PIC X(33).
 2161           05 VALUE ' STEP                     ' PIC X(33).
 2162           05 VALUE 'VSTOP                     ' PIC X(33).
```

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

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

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

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

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

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

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

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

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

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

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================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 57
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 58
====== ===================================================================================

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

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

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

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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 = '. '
```

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```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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```
 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
```

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

==

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

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

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

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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
```

```
 3141              PERFORM 361-Release-Ref
 3142          END-EVALUATE
 3143          .
 3144
 3145      351-SET SECTION.
 3146          EVALUATE WS-Token-Prev-TXT
 3147          WHEN 'SET'
 3148              PERFORM 362-Release-Upd
 3149          WHEN OTHER
 3150              PERFORM 361-Release-Ref
 3151          END-EVALUATE
 3152          .
 3153
 3154      351-STRING SECTION.
 3155          EVALUATE WS-Token-Prev-TXT
 3156          WHEN 'INTO'
 3157              PERFORM 362-Release-Upd
 3158          WHEN 'POINTER'
 3159              PERFORM 362-Release-Upd
 3160          WHEN OTHER
 3161              PERFORM 361-Release-Ref
 3162          END-EVALUATE
 3163          .
 3164
 3165      351-SUBTRACT SECTION.
 3166          EVALUATE WS-Token-Prev-TXT
 3167          WHEN 'GIVING'
 3168              PERFORM 362-Release-Upd
 3169          WHEN 'FROM'
 3170              PERFORM 362-Release-Upd
 3171          WHEN OTHER
 3172              PERFORM 361-Release-Ref
 3173          END-EVALUATE
 3174          .
 3175
 3176 GC1213 351-TERMINATE SECTION.
 3177 GC1213     PERFORM 362-Release-Upd
 3178 GC1213     .
 3179
 3180      351-TRANSFORM SECTION.
 3181          EVALUATE WS-Token-Prev-TXT
 3182          WHEN 'TRANSFORM'
 3183              PERFORM 362-Release-Upd
 3184              MOVE SPACES TO WS-Token-Prev-TXT
 3185          WHEN OTHER
 3186              PERFORM 361-Release-Ref
 3187          END-EVALUATE
 3188          .
 3189
 3190      351-UNSTRING SECTION.
 3191          EVALUATE WS-Token-Prev-TXT
 3192          WHEN 'INTO'
 3193              PERFORM 362-Release-Upd
```

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

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

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

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

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

```
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)
```

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

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

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

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

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

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

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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
```

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

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

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

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

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

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

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

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

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

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

```
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    ]
```

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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
```

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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*
```

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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*
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GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 94

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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*
```

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

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

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                        2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References       Page: 98
===============  ==============================  ======  ===============  ========================
LISTING          364-Set-Ref                     3238 PROCEDURE         3080    3219
LISTING          365-Release-Arg                 3247 PROCEDURE         3023
LISTING          366-Set-Arg                     3252 PROCEDURE         3248
LISTING          400-Produce-Xref-Listing        3263 PROCEDURE         2419
LISTING          410-Generate-Report-Line        3341 PROCEDURE         3272    3275    3285
                                                                        3289    3299    3311
                                                                        3327    3337
LISTING          420-Generate-Xref-Footer        3409 PROCEDURE         3278    3343
LISTING          500-Produce-Source-Listing      3443 PROCEDURE         2413
LISTING          510-Control-Record              3466 PROCEDURE         3456
LISTING          520-Expanded-Src-Record         3483 PROCEDURE         3458
LISTING          530-Generate-Source-Line        3549 PROCEDURE         3450    3497    3501
                                                                        3506    3510    3514
                                                                        3517    3533    3537
                                                                        3541    3544
LISTING          F-ES-1-7-TXT                    1430 FILE              2568    3454
LISTING          F-ES-1-CHR                      1427 FILE              2569    3455
LISTING          F-ES-2-256-TXT-256              1428 FILE              2712    3467
LISTING          F-ES-8-256-TXT                  1431 FILE
LISTING          F-Expanded-Src-FILE             1425 FILE              1416    2501    2548
                                                                        2558    3445    3448
                                                                        3463    3476
LISTING          F-Expanded-Src-REC              1426 FILE              2502*   2556    2580
                                                                        2582    2612    2616
                                                                        2625    2629    2638
                                                                        2642    2650    2668
                                                                        2753*   2758    3519
                                                                        3521
LISTING          F-Expanded-Src2-REC             1429 FILE
LISTING          F-Listing-135-REC               1435 FILE              3351*   3353*   3355*
                                                                        3356    3358*   3359
                                                                        3362*   3364*   3365
                                                                        3366*   3367*   3368
                                                                        3369    3370    3371
                                                                        3399    3411    3413*
                                                                        3414    3416*   3418*
                                                                        3420    3422    3423
                                                                        3567    3569    3571*
                                                                        3572    3574*   3576*
                                                                        3577    3578    3608*
                                                                        3610*   3612*   3613
                                                                        3615*   3616    3618*
                                                                        3620*   3621    3623*
                                                                        3624    3650*   3655*
                                                                        3656    3659*   3660
LISTING          F-Listing-96-REC                1434 FILE              3374*   3376*   3378*
                                                                        3379    3381*   3382
                                                                        3385*   3387*   3388
                                                                        3389*   3390*   3391
                                                                        3392    3393    3394
                                                                        3402    3426    3428*
                                                                        3429    3431*   3433*
                                                                        3435    3437    3438
```

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GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 99
===============  ==============================  ======  ===============  ========================
                                                                        3584    3586    3587
                                                                        3589    3591*   3592
                                                                        3594*   3596*   3597
                                                                        3598    3627*   3629*
                                                                        3631*   3632    3634*
                                                                        3635    3637*   3639*
                                                                        3640    3642*   3643
                                                                        3651    3666    3671
                                                                        3675    3680    3684
                                                                        3688
LISTING          F-Listing-FILE                 1433 FILE              1418    2412    2420
LISTING          F-Listing-REC                  1436 FILE
LISTING          F-Original-Src-FILE            1438 FILE              1420    3444    3462
                                                                        3486
LISTING          F-Original-Src-REC             1439 FILE              3490
LISTING          F-OS-1-128-TXT                 1440 FILE
LISTING          F-OS-129-256-TXT               1445 FILE
LISTING          F-OS-7-CHR                     1442 FILE              3495
LISTING          F-OS-8-72-TXT                  1443 FILE              3491    3523
LISTING          F-Sort-Work-FILE               1447 FILE              1422    2414    3270
LISTING          F-Sort-Work-REC                1448 FILE              2523*   2525    2560*
                                                                        2562    3040    3043*
                                                                        3046    3088*   3091
                                                                        3096*   3099    3120
                                                                        3122*   3125    3208*
                                                                        3215    3220    3225
                                                                        3229*   3239*   3249
                                                                        3253*
LISTING          F-SW-Def-Line-NUM              1453 FILE              3213*   3296    3304
                                                                        3308    3320    3321
LISTING          F-SW-Prog-ID-TXT               1449 FILE              2415    3209*   3230*
                                                                        3240*   3254*   3281
                                                                        3287    3292    3301
                                                                        3313    3317
LISTING          F-SW-Ref-Flag-CHR              1456 FILE              3045*   3090*   3098*
                                                                        3124*   3235*   3259*
                                                                        3332
LISTING          F-SW-Ref-Line-NUM              1455 FILE              2417    3214*   3234*
                                                                        3244*   3258*   3330
LISTING          F-SW-Reference-TXT             1454 FILE              3324
LISTING          F-SW-Section-TXT               1452 FILE              3212*   3233*   3243*
                                                                        3257*   3303    3319
LISTING          F-SW-Token-TXT                 1451 FILE              3211*   3232*   3242*
                                                                        3256*   3318
LISTING          F-SW-Token-Uc-TXT              1450 FILE              2416    3210*   3231*
                                                                        3241*   3255*   3282
                                                                        3293    3295    3307
LISTING          L-Listing-CD                   2402 LINKAGE           2409    2449    2486
                                                                        3349    3398    3410
                                                                        3551    3565    3606
                                                                        3647
LISTING          L-Listing-Fn-TXT               2392 LINKAGE           1418    2404
LISTING          L-LPP-NUM                       2398 LINKAGE           2407    2487
```

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

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

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

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

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

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

First, here is the STREAMIOcb.cpy copybook:

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

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

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

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

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

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

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```

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

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```

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

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

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

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```

```
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.            **

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```

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


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```

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

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

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

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

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```
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

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



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


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