GnuCOBOL Sample Programs

For Version 3.2 [5 September 2021 at 16:40 GMT.]

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This manual documents GnuCOBOL 3.2, 5 September 2021 at 16:40 GMT. build.

Table of Contents

1. FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

2. COBDUMP

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

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

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

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

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                         2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line    Statement                                                                Page: 1
====== ==================================================================================
     1         >>SOURCE FORMAT IS FIXED
     2          IDENTIFICATION DIVISION.
     3          PROGRAM-ID.    COBDUMP.
     4         *>****************************************************************
     5         *> This is an OpenCOBOL subroutine that will generate a       **
     6         *> formatted Hex/Char dump of a storage area.  To use this    **
     7         *> subroutine, simply CALL it as follows:                     **
     8         *>                                                            **
     9         *> CALL "COBDUMP" USING <data-item>                           **
    10         *>                      [ <length> ]                          **
    11         *>                                                            **
    12         *> If specified, the <length> argument specifies how many     **
    13         *> bytes of <data-item> are to be dumped.  If absent, all of  **
    14         *> <data-item> will be dumped (i.e. LENGTH(<data-item>) will  **
    15         *> be assumed for <length>).                                  **
    16         *>                                                            **
    17         *> >>> Note that the subroutine name MUST be specified in  <<< **
    18         *> >>> UPPERCASE                                           <<< **
    19         *>                                                            **
    20         *> The dump is generated to STDERR, so you may pipe it to a   **
    21         *> file when you execute your program using "2> file".        **
    22         *>                                                            **
    23         *> AUTHOR:      GARY L. CUTLER                                **
    24         *>                                                            **
    25         *> NOTE:        The author has a sentimental attachment to    **
    26         *>              this subroutine - it's been around since 1971 **
    27         *>              and it's been converted to and run on 10 dif- **
    28         *>              ferent operating system/compiler environments **
    29         *>                                                            **
    30         *> DATE-WRITTEN: October 14, 1971                             **
    31         *>                                                            **
    32         *>****************************************************************
    33         *>  DATE  CHANGE DESCRIPTION                                  **
    34         *> ====== ================================================== **
    35         *> GC1071 Initial coding - Univac Dept. of Defense COBOL '68  **
    36         *> GC0577 Converted to Univac ASCII COBOL (ACOB) - COBOL '74  **
    37         *> GC1182 Converted to Univac UTS4000 COBOL - COBOL '74 w/    **
    38         *>        SCREEN SECTION enhancements                         **
    39         *> GC0883 Converted to Honeywell/Bull COBOL - COBOL '74       **
    40         *> GC0983 Converted to IBM VS COBOL - COBOL '74               **
    41         *> GC0887 Converted to IBM VS COBOL II - COBOL '85            **
    42         *> GC1294 Converted to Micro Focus COBOL V3.0 - COBOL '85 w/  **
    43         *>        extensions                                          **
    44         *> GC0703 Converted to Unisys Universal Compiling System (UCS) **
    45         *>        COBOL (UCOB) - COBOL '85                            **
    46         *> GC1204 Converted to Unisys Object COBOL (OCOB) - COBOL 2002 **
    47         *> GC0609 Converted to OpenCOBOL 1.1 - COBOL '85 w/ some COBOL **
    48         *>        2002 features                                       **
    49         *> GC0410 Enhanced to make 2nd argument (buffer length)       **

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                   C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line   Statement                                                                Page: 2
====== =================================================================================
  50       *>      optional                                    **
  51       *> GC0211 Ported to IBM Enterprise COBOL            **
  52       *> GC0612 Updated for OpenCOBOL 2.0                 **
  53       *>**************************************************************
  54        ENVIRONMENT DIVISION.
  55        CONFIGURATION SECTION.
  56        REPOSITORY.
  57            FUNCTION ALL INTRINSIC.
  58        DATA DIVISION.
  59        WORKING-STORAGE SECTION.
  60        01  WS-Addr-PTR                        USAGE POINTER.
  61        01  WS-Addr-NUM REDEFINES WS-Addr-PTR
  62                                               USAGE BINARY-LONG.
  63
  64        01  WS-Addr-SUB                        USAGE BINARY-CHAR.
  65
  66        01  WS-Addr-Value-NUM                  USAGE BINARY-LONG.
  67
  68        01  WS-Buffer-Byte-CHR.
  69            05 WS-Buffer-Byte-NUM              USAGE BINARY-CHAR.
  70
  71        01  WS-Buffer-Length-NUM               USAGE BINARY-LONG.
  72
  73        01  WS-Buffer-SUB                      PIC 9(4) COMP-5.
  74
  75        01  WS-Hex-Digit-TXT VALUE '0123456789ABCDEF'.
  76            05 WS-Hex-Digit-CHR                OCCURS 16 TIMES
  77                                               PIC X(1).
  78
  79        01  WS-Nibble-SUB                      PIC 9(1) COMP-5.
  80
  81        01  WS-Nibble-Left-SUB                 PIC 9(1) COMP-5.
  82
  83        01  WS-Nibble-Right-SUB                PIC 9(1) COMP-5.
  84
  85        01  WS-Output-Detail-TXT.
  86            05 WS-OD-Addr-TXT.
  87               10 WS-OD-Addr-Hex-CHR           OCCURS 8 TIMES PIC X.
  88            05 FILLER                          PIC X(1).
  89            05 WS-OD-Relative-Byte-NUM         PIC Z(3)9.
  90            05 FILLER                          PIC X(1).
  91            05 WS-OD-Hex-TXT                    OCCURS 16 TIMES.
  92               10 WS-OD-Hex-1-CHR              PIC X.
  93               10 WS-OD-Hex-2-CHR              PIC X.
  94               10 FILLER                       PIC X.
  95            05 WS-OD-ASCII-Data-TXT.
  96               10 WS-OD-ASCII-CHR              OCCURS 16 TIMES
  97                                               PIC X.
  98

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```

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


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```

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

```
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```

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

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

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

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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'.
```

```
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.

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
```

==

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

==

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

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

```
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.
```

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

```
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: "'
```

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

```
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
```

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

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

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

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

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

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

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

===
```
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```

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

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

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

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

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

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

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

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

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

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

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

```
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             .
```

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

```
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.
```

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

```
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
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 34
```

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                      Page: 36
====== ========================================================================
 1421                                    ORGANIZATION IS LINE SEQUENTIAL.
 1422             SELECT F-Sort-Work-FILE    ASSIGN TO DISK.
 1423          DATA DIVISION.
 1424          FILE SECTION.
 1425          FD  F-Expanded-Src-FILE.
 1426          01  F-Expanded-Src-REC.
 1427              05 F-ES-1-CHR                    PIC X.
 1428              05 F-ES-2-256-TXT-256            PIC X(256).
 1429 GC0712 01  F-Expanded-Src2-REC.
 1430 GC0712     05 F-ES-1-7-TXT                    PIC X(7).
 1431 GC0712     05 F-ES-8-256-TXT                  PIC X(249).
 1432
 1433 GC0712 FD  F-Listing-FILE.
 1434 GC1213 01  F-Listing-96-REC                   PIC X(96).
 1435 GC1213 01  F-Listing-135-REC                  PIC X(135).
 1436        01  F-Listing-REC                      PIC X(135).
 1437
 1438          FD  F-Original-Src-FILE.
 1439          01  F-Original-Src-REC.
 1440 GC0410     05 F-OS-1-128-TXT.
 1441 GC0410        10 FILLER                       PIC X(6).
 1442 GC0410        10 F-OS-7-CHR                   PIC X(1).
 1443 GC0712        10 F-OS-8-72-TXT                PIC X(65).
 1444 GC0712        10 FILLER                       PIC X(56).
 1445              05 F-OS-129-256-TXT              PIC X(128).
 1446
 1447          SD  F-Sort-Work-FILE.
 1448          01  F-Sort-Work-REC.
 1449              05 F-SW-Prog-ID-TXT              PIC X(15).
 1450              05 F-SW-Token-Uc-TXT             PIC X(32).
 1451              05 F-SW-Token-TXT                PIC X(32).
 1452              05 F-SW-Section-TXT              PIC X(15).
 1453              05 F-SW-Def-Line-NUM             PIC 9(6).
 1454              05 F-SW-Reference-TXT.
 1455                 10 F-SW-Ref-Line-NUM          PIC 9(6).
 1456                 10 F-SW-Ref-Flag-CHR          PIC X(1).
 1457
 1458          WORKING-STORAGE SECTION.
 1459 GC1213 01  WS-Copyright-TXT                   PIC X(86).
 1460
 1461        01  WS-Curr-CHR                        PIC X(1).
 1462            88 WS-Curr-Char-Is-Punct-BOOL      VALUE '=', '(', ')',
 1463                                               '*', '/', '&',
 1464                                               ';', ',', '<',
 1465                                               '>', ':'.
 1466            88 WS-Curr-Char-Is-Quote-BOOL      VALUE "'", '"'.
 1467            88 WS-Curr-Char-Is-X-BOOL          VALUE 'x', 'X'.
 1468            88 WS-Curr-Char-Is-Z-BOOL          VALUE 'z', 'Z'.
 1469
 1470        01  WS-Curr-Division-TXT               PIC X(1).
 1471 GC1010     88 WS-CD-In-IDENT-DIV-BOOL         VALUE 'i', 'I', '?'.
 1472 GC1010     88 WS-CD-In-ENV-DIV-BOOL           VALUE 'e', 'E'.
 1473 GC1010     88 WS-CD-In-DATA-DIV-BOOL          VALUE 'd', 'D'.
```

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

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

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

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                                          /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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                                               /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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                                        /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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                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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====== =================================================================================
 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).
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 1806 GC1213      05 VALUE 'FFACTORIAL                   ' PIC X(33).
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 1808          05 VALUE ' FALSE                       ' PIC X(33).
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 1813 GC1113      05 VALUE ' FILLER                      ' PIC X(33).
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 1816 GC0712      05 VALUE ' FLOAT-BINARY-128            ' PIC X(33).     UNIMPLEMENTED
 1817 GC0712      05 VALUE ' FLOAT-BINARY-32             ' PIC X(33).     UNIMPLEMENTED
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 1833 GC1213      05 VALUE 'FFORMATTED-DATE              ' PIC X(33).     UNIMPLEMENTED
 1834 GC1213      05 VALUE 'FFORMATTED-DATETIME          ' PIC X(33).     UNIMPLEMENTED
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 1895             05 VALUE ' IS                      ' PIC X(33).
 1896             05 VALUE ' JUST                    ' PIC X(33).
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 1905           05 VALUE ' LC_CTYPE                      ' PIC X(33).     UNIMPLEMENTED
 1906           05 VALUE ' LC_MESSAGES                   ' PIC X(33).     UNIMPLEMENTED
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 1909           05 VALUE ' LC_TIME                       ' PIC X(33).     UNIMPLEMENTED
 1910           05 VALUE ' LEADING                       ' PIC X(33).
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 1912           05 VALUE ' LEFT-JUSTIFY                  ' PIC X(33).     UNIMPLEMENTED
 1913           05 VALUE ' LEFTLINE                      ' PIC X(33).
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 1916           05 VALUE ' LENGTH-CHECK                  ' PIC X(33).
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 1949           05 VALUE ' METHOD-ID                     ' PIC X(33).     UNIMPLEMENTED
 1950 GC1213    05 VALUE 'FMIDRANGE                      ' PIC X(33).
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 1952             05 VALUE ' MINUS                        ' PIC X(33).
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 1955 GC1213      05 VALUE 'FMODULE-CALLER-ID             ' PIC X(33).
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 1969             05 VALUE ' NATIONAL-EDITED              ' PIC X(33).
 1970 GC1213      05 VALUE 'FNATIONAL-OF                  ' PIC X(33).    UNIMPLEMENTED
 1971             05 VALUE ' NATIVE                       ' PIC X(33).
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 2001             05 VALUE ' OMITTED                      ' PIC X(33).
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 2005            05 VALUE ' OPTIONAL                     ' PIC X(33).
 2006            05 VALUE ' OPTIONS                      ' PIC X(33).        UNIMPLEMENTED
 2007            05 VALUE ' OR                           ' PIC X(33).
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 2022 GC1213     05 VALUE 'IPAGE-COUNTER                 ' PIC X(33).
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 2034            05 VALUE ' PREFIXED                     ' PIC X(33).        UNIMPLEMENTED
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 2038            05 VALUE 'MPRINTER                      ' PIC X(33).
 2039            05 VALUE ' PRINTING                     ' PIC X(33).
 2040            05 VALUE 'KPROCEDURE                    ' PIC X(33).
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 2042            05 VALUE ' PROCEDURES                   ' PIC X(33).
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 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).
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 2050            05 VALUE ' PROTOTYPE                    ' PIC X(33).        UNIMPLEMENTED
 2051            05 VALUE ' PURGE                        ' PIC X(33).        OBSOLETE
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 2053            05 VALUE ' QUOTE                        ' PIC X(33).
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 2056            05 VALUE ' RAISING                      ' PIC X(33).        UNIMPLEMENTED
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 2063           05 VALUE ' RECORD                        ' PIC X(33).
 2064           05 VALUE ' RECORDING                     ' PIC X(33).
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 2074 GC1213     05 VALUE 'FREM                           ' PIC X(33).
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 2076           05 VALUE ' REMARKS                       ' PIC X(33).    OBSOLETE
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 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).
```

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

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

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

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

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

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

```
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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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```

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

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```

```
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====== ===============================================================================
 2709            .
```

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```

```
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                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 63
======  ====================================================================================

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

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```
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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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```
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Line    Statement                                                              Page: 65
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  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              .
```

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Line    Statement                                                        Page: 66
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  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             .
```

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  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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====== =======================================================================
  2908              EXIT SECTION
  2909          END-IF
  2910              .
```

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Line   Statement                                                       Page: 70
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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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=====================================================================================================
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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           .
```

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

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

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

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

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

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```

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

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

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```
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              .
```

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

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

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

===

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

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

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

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

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

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

```
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
```

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

```
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.
```

```
===================================================================================================
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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: 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
```

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================================================================================================
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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: 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      ]
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                                                                      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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```

```
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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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===============  ===============================  ======  ===============  ========================
                                                                         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
```

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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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==============  ==============================  ======  ===============  ========================
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
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LISTING         WS-Curr-Division-TXT            1470 WORKING-STORAGE    2506*   2542    2593
                                                                        2601    2701    2817*
                                                                        2836*   2862*   2918*
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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*
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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*
```

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                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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*
```

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                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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                                                                          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
```

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                                                                          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
```

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

6. STREAMIO

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

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

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

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

- Coding a GnuCOBOL subroutine
- Using the `REPLACING` clause on a CDF `COPY` statement
- Using hexadecimal alphanumeric literals
- Using the following statements:
    - o `ACCEPT FROM ENVIRONMENT` statement
    - o `INSPECT` statement
    - o `STRING` statement
- Using the following built-in subroutines:
    - o `C$PARAMSIZE` built-in system subroutine
    - o `CBL_CLOSE_FILE` built-in system subroutine
    - o `CBL_DELETE_FILE` built-in system subroutine
    - o `CBL_EXIT_PROC` built-in system subroutine
    - o `CBL_OPEN_FILE` built-in system subroutine
    - o `CBL_READ_FILE` built-in system subroutine
    - o `CBL_WRITE_FILE` built-in system subroutine
- Using the following intrinsic functions:
    - o `RANDOM` intrinsic function
    - o `TRIM` intrinsic function

First, here is the STREAMIOcb.cpy copybook:

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                           Page: 1
====== =============================================================================
    1         >>SOURCE FORMAT IS FIXED
    2          IDENTIFICATION DIVISION.
    3          PROGRAM-ID. STREAMIO.
    4         *>****************************************************************
    5         *> Author: Gary L. Cutler                                    **
    6         *>                                                           **
    7         *> This routine centralizes all bytestream file I/O  functions **
    8         *> into one routine.  The manner in which this routine is     **
    9         *> CALLed is as follows:                                      **
   10         *>                                                           **
   11         *>         CALL "STREAMIO" USING control-block [ , arg2 ]    **
   12         *>                                                           **
   13         *> where 'control-block' is defined by the "STREAMIOcb.cpy"  **
   14         *> copybook and 'arg2' will vary, depending upon the function **
   15         *> specified in the control block.                           **
   16         *>                                                           **
   17         *> The STREAMIO routine has an advantage over the various    **
   18         *> "CBL_xxxxxx_FILE" routines in that:                        **
   19         *>                                                           **
   20         *> 1. It automates the establishment and on-going adjustment of **
   21         *>    the file-offset value in such a way as to simplify the  **
   22         *>    sequential processing of a bytestream file (you may still **
   23         *>    specify a file-offset manually on each read or write, if **
   24         *>    you wish)                                               **
   25         *>                                                           **
   26         *> 2. It auto-detects the size of the I/O buffer you supply to **
   27         *>    STREAMIO, using that as the byte-count of all read and   **
   28         *>    write operations.                                       **
   29         *>                                                           **
   30         *> 3. Not only does it support the raw input and output of data **
   31         *>    that the CBL_READ_FILE and CBL_WRITE_FILE routines do,  **
   32         *>    but on input it is also capable of delivering just a     **
   33         *>    single newline-delimited or carriage-return/newline de- **
   34         *>    limited record to the caller.                           **
   35         *>                                                           **
   36         *> 4. On output, STREAMIO can optionally append either a new- **
   37         *>    line or carriage-return/newline sequence (your choice) to **
   38         *>    the end of every record it writes.                      **
   39         *>                                                           **
   40         *> 5. STREAMIO can automatically generate filenames for output **
   41         *>    files if you wish, simplifying the process of creating  **
   42         *>    scratch or work files.                                  **
   43         *>                                                           **
   44         *> 6. The STREAMIO routine also allows you to (optionally) re- **
   45         *>    gister a general error-handling routine to be given con- **
   46         *>    trol should a fatal error be detected with STREAMIO.     **
   47         *>                                                           **
   48         *>    This routine can be "turned on" and "turned off" at will. **
   49         *>                                                           **

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

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

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

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

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

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 **

===

```
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 '.


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

Line   Statement   Page: 9
====== ==
        88 L-SCB-Func-WRITE-Delim-BOOL VALUE 'WD' 'wd'
        'wD' 'Wd'.
        05 L-SCB-Delimiter-Mode-CD PIC X(1).
        88 L-SCB-DELIM-Unix-BOOL VALUE 'U' 'u'.
        88 L-SCB-DELIM-Windows-BOOL VALUE 'W' 'w'.
        05 L-SCB-Offset-NUM PIC X(8) COMP-X.
        05 L-SCB-Error-Routine-PTR USAGE PROGRAM-POINTER.
        05 L-SCB-Error-Routine-NUM REDEFINES L-SCB-Error-Routine-PTR
        USAGE BINARY-LONG.
        05 L-SCB-Return-CD USAGE BINARY-LONG.
        05 L-SCB-Filename-TXT PIC X(256).
    380   01 L-Arg2-TXT   PIC X ANY LENGTH.
    381   PROCEDURE DIVISION USING L-StreamIO-Control-Block-TXT,
    382   L-Arg2-TXT.
    383   000-Main SECTION.
    384   MOVE 00 TO L-SCB-Return-CD
    385   EVALUATE TRUE
    386   WHEN L-SCB-Func-CLOSE-BOOL
    387   PERFORM 030-Validate-Handle-NonZero
    388   PERFORM 200-CLOSE
    389   WHEN L-SCB-Func-DELETE-BOOL
    390   CALL "CBL_DELETE_FILE" USING L-SCB-Filename-TXT
    391   WHEN L-SCB-Func-OPEN-BOOL
    392   PERFORM 020-Validate-Handle-Zero
    393   PERFORM 100-OPEN
    394   WHEN L-SCB-Func-READ-BOOL
    395   PERFORM 030-Validate-Handle-NonZero
    396   PERFORM 400-READ
    397   WHEN L-SCB-Func-READ-Delim-BOOL
    398   PERFORM 030-Validate-Handle-NonZero
    399   PERFORM 500-READ-Delim
    400   WHEN L-SCB-Func-WRITE-BOOL
    401   PERFORM 030-Validate-Handle-NonZero
    402   PERFORM 300-WRITE
    403   WHEN L-SCB-Func-WRITE-Delim-BOOL
    404   EVALUATE TRUE
    405   WHEN L-SCB-Delim-Unix-BOOL
    406   PERFORM 030-Validate-Handle-NonZero
    407   PERFORM 300-WRITE
    408   MOVE 1 TO WS-Arg-Length-NUM
    409   MOVE X"0A" TO WS-Delim-Buffer-TXT
    410   WHEN L-SCB-Delim-Windows-BOOL
    411   PERFORM 030-Validate-Handle-NonZero
    412   PERFORM 300-WRITE
    413   MOVE 2 TO WS-Arg-Length-NUM
    414   MOVE X"0D0A" TO WS-Delim-Buffer-TXT
    415   WHEN OTHER
    416   MOVE -4 TO L-SCB-Return-CD
    417   PERFORM 099-ERROR-Return

====== ==

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

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



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


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