GnuCOBOL Sample Programs

For Version 3.1 RC-1 [July2020]

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

Table of Contents

1. FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

2. COBDUMP

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

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

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

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

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                            C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line    Statement                                                            Page: 1
====== =============================================================================
     1         >>SOURCE FORMAT IS FIXED
     2          IDENTIFICATION DIVISION.
     3          PROGRAM-ID.   COBDUMP.
     4         *>****************************************************************
     5         *> This is an OpenCOBOL subroutine that will generate a       **
     6         *> formatted Hex/Char dump of a storage area.  To use this    **
     7         *> subroutine, simply CALL it as follows:                     **
     8         *>                                                            **
     9         *> CALL "COBDUMP" USING <data-item>                           **
    10         *>                      [ <length> ]                          **
    11         *>                                                            **
    12         *> If specified, the <length> argument specifies how many     **
    13         *> bytes of <data-item> are to be dumped.  If absent, all of  **
    14         *> <data-item> will be dumped (i.e. LENGTH(<data-item>) will  **
    15         *> be assumed for <length>).                                  **
    16         *>                                                            **
    17         *> >>> Note that the subroutine name MUST be specified in  <<< **
    18         *> >>> UPPERCASE                                           <<< **
    19         *>                                                            **
    20         *> The dump is generated to STDERR, so you may pipe it to a   **
    21         *> file when you execute your program using "2> file".        **
    22         *>                                                            **
    23         *> AUTHOR:      GARY L. CUTLER                                **
    24         *>                                                            **
    25         *> NOTE:        The author has a sentimental attachment to    **
    26         *>              this subroutine - it's been around since 1971 **
    27         *>              and it's been converted to and run on 10 dif- **
    28         *>              ferent operating system/compiler environments **
    29         *>                                                            **
    30         *> DATE-WRITTEN: October 14, 1971                             **
    31         *>                                                            **
    32         *>****************************************************************
    33         *>  DATE  CHANGE DESCRIPTION                                  **
    34         *> ====== =================================================== **
    35         *> GC1071 Initial coding - Univac Dept. of Defense COBOL '68  **
    36         *> 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)       **

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

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

==

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

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```

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

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

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

3. Colors

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

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

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

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

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

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

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

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

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

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

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

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

    217   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    218   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    219   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    220   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    221   05 LINE + 1.
    222   10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    223   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    224   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    225   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    226   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    227   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    228   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    229   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    230   05 LINE + 1.
    231   10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    232   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    233   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    234   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    235   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    236   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    237   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    238   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    239   05 LINE + 1.
    240   10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    241   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    242   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    243   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    244   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    245   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    246   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    247   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    248   05 LINE + 1.
    249   10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    250   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    251   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    252   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    253   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    254   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    255   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    256   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    257   05 LINE + 1.
    258   10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    259   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    260   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    261   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    262   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    263   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    264   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    265   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    266   05 LINE + 1.
    267   10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    268   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    269   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    270   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
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ACS Cobol Xref v2.02.02         Dictionary File for COLORS     07/12/2019  16:57:00:18
    271    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    272    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    273    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    274    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    275    *> #4
    276    05 LINE 05.
    277    10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    278    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    279    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    280    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    281    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    282    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    283    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    284    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    285    05 LINE + 1.
    286    10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    287    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    288    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    289    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    290    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    291    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    292    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    293    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    294    05 LINE + 1.
    295    10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    296    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    297    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    298    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    299    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    300    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    301    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    302    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    303    05 LINE + 1.
    304    10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    305    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    306    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    307    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    308    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    309    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    310    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    311    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    312    05 LINE + 1.
    313    10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    314    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    315    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    316    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    317    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    318    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    319    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    320    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    321    05 LINE + 1.
    322    10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    323    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    324    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
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   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.

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

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

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

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

```
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
```

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

5. GCic

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

===

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

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

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

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

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

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

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

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

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

==

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

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

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

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

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

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

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

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

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

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

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

====== ===

```
   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
```

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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: 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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```

```
   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
```

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

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

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                         Page: 30
====== =========================================================================

 1173         *>**************************************************************
 1174         *> Determine if the program being compiled is a MAIN program   **
 1175         *>**************************************************************
 1176          240-Find-LINKAGE-SECTION SECTION.
 1177             OPEN INPUT F-Source-Code-FILE
 1178 GC0712     MOVE ' ' TO WS-CS-LIBRARY-CHR
 1179             SET WS-RS-More-To-1st-Prog-BOOL   TO TRUE
 1180             PERFORM UNTIL WS-RS-1st-Prog-Complete-BOOL
 1181                 READ F-Source-Code-FILE AT END
 1182                     CLOSE F-Source-Code-FILE
 1183                     EXIT SECTION
 1184                 END-READ
 1185 GC0712         CALL 'CHECKSRC'
 1186 GC0712             USING BY CONTENT   F-Source-Code-REC
 1187 GC0712                   BY REFERENCE WS-RS-Source-Record-Type-CHR
 1188             IF WS-RS-Source-Rec-Ident-BOOL
 1189                 SET WS-RS-1st-Prog-Complete-BOOL TO TRUE
 1190             END-IF
 1191         END-PERFORM
 1192 GC0712     SET WS-RS-Source-Rec-Ignored-BOOL TO TRUE
 1193             PERFORM UNTIL WS-RS-Source-Rec-Linkage-BOOL
 1194                     OR WS-RS-Source-Rec-Ident-BOOL
 1195                 READ F-Source-Code-FILE AT END
 1196                     CLOSE F-Source-Code-FILE
 1197                     EXIT SECTION
 1198                 END-READ
 1199 GC0712         CALL 'CHECKSRC'
 1200 GC0712             USING BY CONTENT   F-Source-Code-REC
 1201 GC0712                   BY REFERENCE WS-RS-Source-Record-Type-CHR
 1202         END-PERFORM
 1203         CLOSE F-Source-Code-FILE
 1204         IF WS-RS-Source-Rec-Linkage-BOOL
 1205 GC0712     MOVE SELCHAR TO WS-CS-LIBRARY-CHR
 1206         END-IF
 1207             .
```

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

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

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

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

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

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

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 36
====== =========================================================================
 1421                                    ORGANIZATION IS LINE SEQUENTIAL.
 1422           SELECT F-Sort-Work-FILE    ASSIGN TO DISK.
 1423       DATA DIVISION.
 1424       FILE SECTION.
 1425       FD  F-Expanded-Src-FILE.
 1426       01  F-Expanded-Src-REC.
 1427           05 F-ES-1-CHR                   PIC X.
 1428           05 F-ES-2-256-TXT-256           PIC X(256).
 1429 GC0712 01  F-Expanded-Src2-REC.
 1430 GC0712     05 F-ES-1-7-TXT                PIC X(7).
 1431 GC0712     05 F-ES-8-256-TXT              PIC X(249).
 1432
 1433 GC0712 FD  F-Listing-FILE.
 1434 GC1213 01  F-Listing-96-REC               PIC X(96).
 1435 GC1213 01  F-Listing-135-REC              PIC X(135).
 1436       01  F-Listing-REC                   PIC X(135).
 1437
 1438       FD  F-Original-Src-FILE.
 1439       01  F-Original-Src-REC.
 1440 GC0410     05 F-OS-1-128-TXT.
 1441 GC0410        10 FILLER                    PIC X(6).
 1442 GC0410        10 F-OS-7-CHR                PIC X(1).
 1443 GC0712        10 F-OS-8-72-TXT             PIC X(65).
 1444 GC0712        10 FILLER                    PIC X(56).
 1445           05 F-OS-129-256-TXT             PIC X(128).
 1446
 1447       SD  F-Sort-Work-FILE.
 1448       01  F-Sort-Work-REC.
 1449           05 F-SW-Prog-ID-TXT             PIC X(15).
 1450           05 F-SW-Token-Uc-TXT            PIC X(32).
 1451           05 F-SW-Token-TXT               PIC X(32).
 1452           05 F-SW-Section-TXT             PIC X(15).
 1453           05 F-SW-Def-Line-NUM            PIC 9(6).
 1454           05 F-SW-Reference-TXT.
 1455              10 F-SW-Ref-Line-NUM          PIC 9(6).
 1456              10 F-SW-Ref-Flag-CHR          PIC X(1).
 1457
 1458       WORKING-STORAGE SECTION.
 1459 GC1213 01  WS-Copyright-TXT               PIC X(86).
 1460
 1461       01  WS-Curr-CHR                     PIC X(1).
 1462           88 WS-Curr-Char-Is-Punct-BOOL   VALUE '=', '(', ')',
 1463                                            '*', '/', '&',
 1464                                            ';', ',', '<',
 1465                                            '>', ':'.
 1466           88 WS-Curr-Char-Is-Quote-BOOL   VALUE "'", '"'.
 1467           88 WS-Curr-Char-Is-X-BOOL       VALUE 'x', 'X'.
 1468           88 WS-Curr-Char-Is-Z-BOOL       VALUE 'z', 'Z'.
 1469
 1470       01  WS-Curr-Division-TXT            PIC X(1).
 1471 GC1010     88 WS-CD-In-IDENT-DIV-BOOL     VALUE 'i', 'I', '?'.
 1472 GC1010     88 WS-CD-In-ENV-DIV-BOOL       VALUE 'e', 'E'.
 1473 GC1010     88 WS-CD-In-DATA-DIV-BOOL      VALUE 'd', 'D'.
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 37
====== ================================================================================
 1474 GC1010      88 WS-CD-In-PROC-DIV-BOOL             VALUE 'p', 'P'.
 1475
 1476        01  WS-Curr-Line-NUM                       PIC 9(6).
 1477
 1478        01  WS-Curr-Prog-ID-TXT.
 1479            05 FILLER                              PIC X(12).
 1480            05 WS-CPI-13-15-TXT                    PIC X(3).
 1481 GC0712     05 WS-CPI-16-CHR                       PIC X(1).
 1482
 1483        01  WS-Curr-Section-TXT.
 1484            05 WS-CS-1-CHR                         PIC X(1).
 1485            05 WS-CS-2-14-TXT.
 1486                10 FILLER                          PIC X(10).
 1487                10 WS-CS-11-14-TXT                 PIC X(3).
 1488            05 WS-CS-15-CHR                        PIC X(1).
 1489
 1490        01  WS-Curr-Verb-TXT                       PIC X(12).
 1491
 1492        01  WS-Delim-TXT                           PIC X(2).
 1493
 1494        01  WS-Dummy-TXT                           PIC X(1).
 1495
 1496        01  WS-Expanded-Src-Fn-TXT                 PIC X(256).
 1497
 1498        01  WS-Filename-TXT                        PIC X(256).
 1499
 1500 GC1213 01  WS-Flags-TXT.
 1501 GC1213     05 WS-Suppress-FF-CHR                  PIC X(1).
 1502
 1503 GC1213 01  WS-Formatted-DT                        PIC 9999/99/99.
 1504
 1505        01  WS-Group-Indicators-TXT.
 1506            05 WS-GI-Prog-ID-TXT                   PIC X(15).
 1507            05 WS-GI-Token-TXT                     PIC X(32).
 1508
 1509        01  WS-Held-Reference-TXT                  PIC X(100).
 1510
 1511        01  WS-I-SUB                               USAGE BINARY-LONG.
 1512
 1513        01  WS-J-SUB                               USAGE BINARY-LONG.
 1514
 1515        01  WS-Lines-Left-NUM                      USAGE BINARY-LONG.
 1516
 1517        01  WS-Lines-Per-Page-NUM                  USAGE BINARY-LONG.
 1518
 1519        01  WS-Lines-Per-Page-Env-TXT              PIC X(256).
 1520
 1521 GC1010 01  WS-Main-Module-Name-TXT                PIC X(256).
 1522
 1523        01  WS-Next-CHR                            PIC X(1).
 1524            88 WS-Next-Char-Is-Quote-BOOL          VALUE '"', "'".
 1525
 1526        01  WS-OS-Type-FILLER-TXT.
```

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

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GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 39
====== =========================================================================
 1580 GC1213     05 VALUE 'FASIN                    ' PIC X(33).
 1581            05 VALUE ' ASSIGN                   ' PIC X(33).
 1582            05 VALUE ' AT                       ' PIC X(33).
 1583 GC1213     05 VALUE 'FATAN                    ' PIC X(33).
 1584 GC0711     05 VALUE ' ATTRIBUTE                ' PIC X(33).
 1585            05 VALUE ' AUTHOR                   ' PIC X(33).    OBSOLETE
 1586            05 VALUE ' AUTO                     ' PIC X(33).
 1587            05 VALUE ' AUTO-SKIP                ' PIC X(33).
 1588            05 VALUE ' AUTOMATIC                ' PIC X(33).
 1589            05 VALUE ' AUTOTERMINATE            ' PIC X(33).
 1590            05 VALUE ' AWAY-FROM-ZERO           ' PIC X(33).
 1591            05 VALUE ' B-AND                    ' PIC X(33).    UNIMPLEMENTED
 1592            05 VALUE ' B-NOT                    ' PIC X(33).    UNIMPLEMENTED
 1593            05 VALUE ' B-OR                     ' PIC X(33).    UNIMPLEMENTED
 1594            05 VALUE ' B-XOR                    ' PIC X(33).    UNIMPLEMENTED
 1595            05 VALUE ' BACKGROUND-COLOR         ' PIC X(33).
 1596            05 VALUE ' BACKGROUND-COLOUR        ' PIC X(33).
 1597            05 VALUE ' BASED                    ' PIC X(33).
 1598            05 VALUE ' BEEP                     ' PIC X(33).
 1599            05 VALUE ' BEFORE                   ' PIC X(33).
 1600            05 VALUE ' BELL                     ' PIC X(33).
 1601            05 VALUE ' BINARY                   ' PIC X(33).
 1602            05 VALUE ' BINARY-C-LONG            ' PIC X(33).
 1603            05 VALUE ' BINARY-CHAR              ' PIC X(33).
 1604            05 VALUE ' BINARY-DOUBLE            ' PIC X(33).
 1605            05 VALUE ' BINARY-INT               ' PIC X(33).
 1606            05 VALUE ' BINARY-LONG              ' PIC X(33).
 1607            05 VALUE ' BINARY-LONG-LONG         ' PIC X(33).
 1608            05 VALUE ' BINARY-SHORT             ' PIC X(33).
 1609            05 VALUE ' BIT                      ' PIC X(33).    UNIMPLEMENTED
 1610            05 VALUE ' BLANK                    ' PIC X(33).
 1611            05 VALUE ' BLINK                    ' PIC X(33).
 1612            05 VALUE ' BLOCK                    ' PIC X(33).
 1613            05 VALUE ' BOOLEAN                  ' PIC X(33).    UNIMPLEMENTED
 1614 GC1213     05 VALUE 'FBOOLEAN-OF-INTEGER       ' PIC X(33).    UNIMPLEMENTED
 1615            05 VALUE ' BOTTOM                   ' PIC X(33).
 1616            05 VALUE 'YBY                       ' PIC X(33).
 1617 GC1213     05 VALUE 'FBYTE-LENGTH              ' PIC X(33).
 1618            05 VALUE 'MC01                      ' PIC X(33).
 1619            05 VALUE 'MC02                      ' PIC X(33).
 1620            05 VALUE 'MC03                      ' PIC X(33).
 1621            05 VALUE 'MC04                      ' PIC X(33).
 1622            05 VALUE 'MC05                      ' PIC X(33).
 1623            05 VALUE 'MC06                      ' PIC X(33).
 1624            05 VALUE 'MC07                      ' PIC X(33).
 1625            05 VALUE 'MC08                      ' PIC X(33).
 1626            05 VALUE 'MC09                      ' PIC X(33).
 1627            05 VALUE 'MC10                      ' PIC X(33).
 1628            05 VALUE 'MC11                      ' PIC X(33).
 1629            05 VALUE 'MC12                      ' PIC X(33).
 1630            05 VALUE 'VCALL                     ' PIC X(33).
 1631            05 VALUE 'MCALL-CONVENTION          ' PIC X(33).
 1632            05 VALUE 'VCANCEL                   ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 40
====== ========================================================================
 1633           05 VALUE ' CAPACITY                    ' PIC X(33).    UNIMPLEMENTED
 1634           05 VALUE ' CD                          ' PIC X(33).    OBSOLETE
 1635           05 VALUE ' CENTER                      ' PIC X(33).    UNIMPLEMENTED
 1636           05 VALUE ' CF                          ' PIC X(33).
 1637           05 VALUE ' CH                          ' PIC X(33).
 1638           05 VALUE ' CHAIN                       ' PIC X(33).    UNIMPLEMENTED
 1639           05 VALUE ' CHAINING                    ' PIC X(33).
 1640 GC1213    05 VALUE 'FCHAR                        ' PIC X(33).
 1641 GC1213    05 VALUE 'FCHAR-NATIONAL               ' PIC X(33).    UNIMPLEMENTED
 1642           05 VALUE ' CHARACTER                   ' PIC X(33).
 1643           05 VALUE ' CHARACTERS                  ' PIC X(33).
 1644           05 VALUE ' CLASS                       ' PIC X(33).
 1645           05 VALUE ' CLASS-ID                    ' PIC X(33).    UNIMPLEMENTED
 1646 GC0711    05 VALUE ' CLASSIFICATION              ' PIC X(33).
 1647           05 VALUE 'VCLOSE                       ' PIC X(33).
 1648 GC1213    05 VALUE 'FCOB-CRT-STATUS              ' PIC X(33).
 1649           05 VALUE ' CODE                        ' PIC X(33).
 1650           05 VALUE ' CODE-SET                    ' PIC X(33).
 1651           05 VALUE ' COL                         ' PIC X(33).
 1652           05 VALUE ' COLLATING                   ' PIC X(33).
 1653           05 VALUE ' COLS                        ' PIC X(33).
 1654           05 VALUE ' COLUMN                      ' PIC X(33).
 1655           05 VALUE ' COLUMNS                     ' PIC X(33).
 1656 GC1213    05 VALUE 'FCOMBINED-DATETIME           ' PIC X(33).
 1657           05 VALUE ' COMMA                       ' PIC X(33).
 1658           05 VALUE ' COMMAND-LINE                ' PIC X(33).
 1659           05 VALUE 'VCOMMIT                      ' PIC X(33).
 1660           05 VALUE ' COMMON                      ' PIC X(33).
 1661           05 VALUE ' COMMUNICATION               ' PIC X(33).    OBSOLETE
 1662           05 VALUE ' COMP                        ' PIC X(33).
 1663           05 VALUE ' COMP-1                      ' PIC X(33).
 1664           05 VALUE ' COMP-2                      ' PIC X(33).
 1665           05 VALUE ' COMP-3                      ' PIC X(33).
 1666           05 VALUE ' COMP-4                      ' PIC X(33).
 1667           05 VALUE ' COMP-5                      ' PIC X(33).
 1668           05 VALUE ' COMP-6                      ' PIC X(33).
 1669           05 VALUE ' COMP-X                      ' PIC X(33).
 1670           05 VALUE ' COMPUTATIONAL               ' PIC X(33).
 1671           05 VALUE ' COMPUTATIONAL-1             ' PIC X(33).
 1672           05 VALUE ' COMPUTATIONAL-2             ' PIC X(33).
 1673           05 VALUE ' COMPUTATIONAL-3             ' PIC X(33).
 1674           05 VALUE ' COMPUTATIONAL-4             ' PIC X(33).
 1675           05 VALUE ' COMPUTATIONAL-5             ' PIC X(33).
 1676           05 VALUE ' COMPUTATIONAL-X             ' PIC X(33).
 1677           05 VALUE 'VCOMPUTE                     ' PIC X(33).
 1678 GC1213    05 VALUE 'FCONCATENATE                 ' PIC X(33).
 1679 GC0712    05 VALUE ' CONDITION                   ' PIC X(33).
 1680           05 VALUE 'KCONFIGURATION               ' PIC X(33).
 1681           05 VALUE 'MCONSOLE                     ' PIC X(33).
 1682           05 VALUE ' CONSTANT                    ' PIC X(33).
 1683           05 VALUE ' CONTAINS                    ' PIC X(33).
 1684 GC0712    05 VALUE 'ACONTENT                     ' PIC X(33).
 1685           05 VALUE 'VCONTINUE                    ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 41
====== ============================================================================
 1686           05 VALUE ' CONTROL                        ' PIC X(33).
 1687           05 VALUE ' CONTROLS                       ' PIC X(33).
 1688 GC0711    05 VALUE ' CONVERSION                     ' PIC X(33).
 1689           05 VALUE 'KCONVERTING                     ' PIC X(33).
 1690           05 VALUE ' COPY                           ' PIC X(33).
 1691           05 VALUE ' CORR                           ' PIC X(33).
 1692           05 VALUE ' CORRESPONDING                  ' PIC X(33).
 1693 GC1213    05 VALUE 'FCOS                            ' PIC X(33).
 1694           05 VALUE 'KCOUNT                          ' PIC X(33).
 1695           05 VALUE ' CRT                            ' PIC X(33).
 1696           05 VALUE ' CRT-UNDER                      ' PIC X(33).
 1697           05 VALUE 'MCSP                            ' PIC X(33).
 1698           05 VALUE ' CURRENCY                       ' PIC X(33).
 1699 GC1213    05 VALUE 'FCURRENCY-SYMBOL                ' PIC X(33).
 1700 GC1213    05 VALUE 'FCURRENT-DATE                   ' PIC X(33).
 1701           05 VALUE ' CURSOR                         ' PIC X(33).
 1702           05 VALUE ' CYCLE                          ' PIC X(33).
 1703           05 VALUE 'KDATA                           ' PIC X(33).
 1704           05 VALUE ' DATA-POINTER                   ' PIC X(33).    UNIMPLEMENTED
 1705           05 VALUE ' DATE                           ' PIC X(33).
 1706           05 VALUE ' DATE-COMPILED                  ' PIC X(33).    OBSOLETE
 1707           05 VALUE ' DATE-MODIFIED                  ' PIC X(33).    OBSOLETE
 1708 GC1213    05 VALUE 'FDATE-OF-INTEGER                ' PIC X(33).
 1709 GC1213    05 VALUE 'FDATE-TO-YYYYMMDD               ' PIC X(33).
 1710           05 VALUE ' DATE-WRITTEN                   ' PIC X(33).    OBSOLETE
 1711           05 VALUE ' DAY                            ' PIC X(33).
 1712 GC1213    05 VALUE 'FDAY-OF-INTEGER                 ' PIC X(33).
 1713           05 VALUE ' DAY-OF-WEEK                    ' PIC X(33).
 1714 GC1213    05 VALUE 'IDAY-TO-YYYYDDD                 ' PIC X(33).
 1715           05 VALUE ' DE                             ' PIC X(33).
 1716 GC0712    05 VALUE 'IDEBUG-CONTENTS                 ' PIC X(33).
 1717 GC0712    05 VALUE 'IDEBUG-ITEM                     ' PIC X(33).
 1718 GC0712    05 VALUE 'IDEBUG-LINE                     ' PIC X(33).
 1719 GC0712    05 VALUE 'IDEBUG-NAME                     ' PIC X(33).
 1720 GC0712    05 VALUE 'IDEBUG-SUB-1                    ' PIC X(33).
 1721 GC0712    05 VALUE 'IDEBUG-SUB-2                    ' PIC X(33).
 1722 GC0712    05 VALUE 'IDEBUG-SUB-3                    ' PIC X(33).
 1723           05 VALUE ' DEBUGGING                      ' PIC X(33).
 1724           05 VALUE ' DECIMAL-POINT                  ' PIC X(33).
 1725           05 VALUE ' DECLARATIVES                   ' PIC X(33).
 1726           05 VALUE ' DEFAULT                        ' PIC X(33).
 1727           05 VALUE 'VDELETE                         ' PIC X(33).
 1728           05 VALUE ' DELIMITED                      ' PIC X(33).
 1729           05 VALUE 'KDELIMITER                      ' PIC X(33).
 1730           05 VALUE ' DEPENDING                      ' PIC X(33).
 1731           05 VALUE ' DESCENDING                     ' PIC X(33).
 1732           05 VALUE ' DESTINATION                    ' PIC X(33).    UNIMPLEMENTED
 1733           05 VALUE ' DETAIL                         ' PIC X(33).
 1734 GC0711    05 VALUE ' DISC                           ' PIC X(33).
 1735           05 VALUE ' DISK                           ' PIC X(33).
 1736           05 VALUE 'VDISPLAY                        ' PIC X(33).
 1737 GC1213    05 VALUE 'FDISPLAY-OF                     ' PIC X(33).    UNIMPLEMENTED
 1738           05 VALUE 'VDIVIDE                         ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                              Page: 42
====== ==============================================================================
 1739           05 VALUE 'KDIVISION                     ' PIC X(33).
 1740           05 VALUE 'KDOWN                         ' PIC X(33).
 1741           05 VALUE ' DUPLICATES                   ' PIC X(33).
 1742           05 VALUE ' DYNAMIC                      ' PIC X(33).
 1743 GC1213    05 VALUE 'FE                            ' PIC X(33).
 1744           05 VALUE ' EBCDIC                       ' PIC X(33).
 1745 GC0712    05 VALUE ' EC                           ' PIC X(33).
 1746           05 VALUE ' EGI                          ' PIC X(33).    OBSOLETE
 1747           05 VALUE 'VELSE                         ' PIC X(33).
 1748           05 VALUE ' EMI                          ' PIC X(33).    OBSOLETE
 1749           05 VALUE ' EMPTY-CHECK                  ' PIC X(33).
 1750           05 VALUE 'VENABLE                       ' PIC X(33).    OBSOLETE
 1751 GC0710    05 VALUE 'KEND                          ' PIC X(33).
 1752           05 VALUE ' END-ACCEPT                   ' PIC X(33).
 1753           05 VALUE ' END-ADD                      ' PIC X(33).
 1754           05 VALUE ' END-CALL                     ' PIC X(33).
 1755           05 VALUE ' END-CHAIN                    ' PIC X(33).    UNIMPLEMENTED
 1756           05 VALUE ' END-COMPUTE                  ' PIC X(33).
 1757           05 VALUE ' END-DELETE                   ' PIC X(33).
 1758           05 VALUE ' END-DISPLAY                  ' PIC X(33).
 1759           05 VALUE ' END-DIVIDE                   ' PIC X(33).
 1760           05 VALUE ' END-EVALUATE                 ' PIC X(33).
 1761           05 VALUE ' END-IF                       ' PIC X(33).
 1762           05 VALUE ' END-MULTIPLY                 ' PIC X(33).
 1763           05 VALUE ' END-OF-PAGE                  ' PIC X(33).
 1764           05 VALUE ' END-PERFORM                  ' PIC X(33).
 1765           05 VALUE ' END-READ                     ' PIC X(33).
 1766           05 VALUE ' END-RECEIVE                  ' PIC X(33).    OBSOLETE
 1767           05 VALUE ' END-RETURN                   ' PIC X(33).
 1768           05 VALUE ' END-REWRITE                  ' PIC X(33).
 1769           05 VALUE ' END-SEARCH                   ' PIC X(33).
 1770           05 VALUE ' END-START                    ' PIC X(33).
 1771           05 VALUE ' END-STRING                   ' PIC X(33).
 1772           05 VALUE ' END-SUBTRACT                 ' PIC X(33).
 1773           05 VALUE ' END-UNSTRING                 ' PIC X(33).
 1774           05 VALUE ' END-WRITE                    ' PIC X(33).
 1775           05 VALUE 'VENTRY                        ' PIC X(33).
 1776           05 VALUE ' ENTRY-CONVENTION             ' PIC X(33).    UNIMPLEMENTED
 1777           05 VALUE 'KENVIRONMENT                  ' PIC X(33).
 1778           05 VALUE ' ENVIRONMENT-NAME             ' PIC X(33).
 1779           05 VALUE ' ENVIRONMENT-VALUE            ' PIC X(33).
 1780           05 VALUE ' EO                           ' PIC X(33).    UNIMPLEMENTED
 1781           05 VALUE ' EOL                          ' PIC X(33).
 1782           05 VALUE ' EOP                          ' PIC X(33).
 1783           05 VALUE ' EOS                          ' PIC X(33).
 1784           05 VALUE ' EQUAL                        ' PIC X(33).
 1785           05 VALUE 'KEQUALS                       ' PIC X(33).
 1786           05 VALUE ' ERASE                        ' PIC X(33).
 1787           05 VALUE ' ERROR                        ' PIC X(33).
 1788           05 VALUE ' ESCAPE                       ' PIC X(33).
 1789           05 VALUE ' ESI                          ' PIC X(33).    OBSOLETE
 1790           05 VALUE 'VEVALUATE                     ' PIC X(33).
 1791           05 VALUE ' EXCEPTION                    ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 43
====== ================================================================================
 1792 GC1213      05 VALUE 'FEXCEPTION-FILE              ' PIC X(33).
 1793 GC1213      05 VALUE 'FEXCEPTION-FILE-N            ' PIC X(33).      UNIMPLEMENTED
 1794 GC1213      05 VALUE 'FEXCEPTION-LOCATION          ' PIC X(33).
 1795 GC1213      05 VALUE 'FEXCEPTION-LOCATION-N        ' PIC X(33).      UNIMPLEMENTED
 1796         05 VALUE ' EXCEPTION-OBJECT            ' PIC X(33).      UNIMPLEMENTED
 1797 GC1213      05 VALUE 'FEXCEPTION-STATEMENT         ' PIC X(33).
 1798 GC1213      05 VALUE 'FEXCEPTION-STATUS            ' PIC X(33).
 1799         05 VALUE ' EXCLUSIVE                   ' PIC X(33).
 1800         05 VALUE 'VEXIT                        ' PIC X(33).
 1801 GC1213      05 VALUE 'FEXP                         ' PIC X(33).
 1802 GC1213      05 VALUE 'FEXP10                       ' PIC X(33).
 1803         05 VALUE ' EXPANDS                     ' PIC X(33).      UNIMPLEMENTED
 1804         05 VALUE ' EXTEND                      ' PIC X(33).
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 1806 GC1213      05 VALUE 'FFACTORIAL                   ' PIC X(33).
 1807         05 VALUE ' FACTORY                     ' PIC X(33).      UNIMPLEMENTED
 1808         05 VALUE ' FALSE                       ' PIC X(33).
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 1810         05 VALUE 'KFILE                        ' PIC X(33).
 1811         05 VALUE ' FILE-CONTROL                ' PIC X(33).
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 1817 GC0712      05 VALUE ' FLOAT-BINARY-32             ' PIC X(33).      UNIMPLEMENTED
 1818 GC0712      05 VALUE ' FLOAT-BINARY-64             ' PIC X(33).      UNIMPLEMENTED
 1819         05 VALUE ' FLOAT-DECIMAL-16            ' PIC X(33).
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 1832 GC1213      05 VALUE 'FFORMATTED-CURRENT-DATE      ' PIC X(33).      UNIMPLEMENTED
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 1858            05 VALUE ' I-O                    ' PIC X(33).
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 1909           05 VALUE ' LC_TIME                    ' PIC X(33).    UNIMPLEMENTED
 1910           05 VALUE ' LEADING                    ' PIC X(33).
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 1952             05 VALUE ' MINUS                       ' PIC X(33).
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 1967 GC0711      05 VALUE ' NAME                        ' 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
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 1975             05 VALUE ' NEGATIVE                    ' PIC X(33).
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 2007              05 VALUE ' OR                       ' PIC X(33).
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 2021              05 VALUE ' PAGE                     ' PIC X(33).
 2022 GC1213       05 VALUE 'IPAGE-COUNTER             ' PIC X(33).
 2023              05 VALUE ' PARAGRAPH                ' PIC X(33).
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 2030              05 VALUE ' PLUS                     ' PIC X(33).
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 2037              05 VALUE ' PREVIOUS                 ' PIC X(33).
 2038              05 VALUE 'MPRINTER                  ' PIC X(33).
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 2041              05 VALUE ' PROCEDURE-POINTER        ' PIC X(33).
 2042              05 VALUE ' PROCEDURES               ' PIC X(33).
 2043              05 VALUE ' PROCEED                  ' PIC X(33).
 2044              05 VALUE ' PROGRAM                  ' PIC X(33).
 2045              05 VALUE 'KPROGRAM-ID               ' PIC X(33).
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 2047              05 VALUE ' PROHIBITED               ' PIC X(33).
 2048              05 VALUE ' PROMPT                   ' PIC X(33).
 2049              05 VALUE ' PROPERTY                 ' PIC X(33).       UNIMPLEMENTED
 2050              05 VALUE ' PROTOTYPE                ' PIC X(33).       UNIMPLEMENTED
 2051              05 VALUE ' PURGE                    ' PIC X(33).       OBSOLETE
 2052              05 VALUE ' QUEUE                    ' PIC X(33).       OBSOLETE
 2053              05 VALUE ' QUOTE                    ' PIC X(33).
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 2063            05 VALUE ' RECORD                         ' PIC X(33).
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 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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GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 51
====== ==========================================================================
 2216           05 VALUE 'MSYSLST                     ' PIC X(33).
 2217           05 VALUE 'MSYSOUT                     ' PIC X(33).
 2218           05 VALUE ' SYSTEM-DEFAULT             ' PIC X(33).
 2219           05 VALUE ' TABLE                      ' PIC X(33).     UNIMPLEMENTED
 2220           05 VALUE 'KTALLYING                   ' PIC X(33).
 2221 GC1213    05 VALUE 'FTAN                        ' PIC X(33).
 2222           05 VALUE ' TAPE                       ' PIC X(33).
 2223           05 VALUE ' TERMINAL                   ' PIC X(33).     OBSOLETE
 2224           05 VALUE 'VTERMINATE                  ' PIC X(33).
 2225           05 VALUE ' TEST                       ' PIC X(33).
 2226 GC1213    05 VALUE 'FTEST-DATE-YYYYMMDD         ' PIC X(33).
 2227 GC1213    05 VALUE 'FTEST-DAY-YYYYDDD           ' PIC X(33).
 2228 GC1213    05 VALUE 'FTEST-FORMATTED-DATETIME    ' PIC X(33).     UNIMPLEMENTED
 2229 GC1213    05 VALUE 'FTEST-NUMVAL                ' PIC X(33).
 2230 GC1213    05 VALUE 'FTEST-NUMVAL-C              ' PIC X(33).
 2231 GC1213    05 VALUE 'FTEST-NUMVAL-F              ' PIC X(33).
 2232           05 VALUE ' TEXT                       ' PIC X(33).     OBSOLETE
 2233           05 VALUE ' THAN                       ' PIC X(33).
 2234           05 VALUE ' THEN                       ' PIC X(33).
 2235           05 VALUE ' THROUGH                    ' PIC X(33).
 2236           05 VALUE ' THRU                       ' PIC X(33).
 2237           05 VALUE ' TIME                       ' PIC X(33).
 2238 GC0711    05 VALUE ' TIME-OUT                   ' PIC X(33).
 2239 GC0711    05 VALUE ' TIMEOUT                    ' PIC X(33).
 2240           05 VALUE ' TIMES                      ' PIC X(33).
 2241           05 VALUE 'KTO                         ' PIC X(33).
 2242           05 VALUE ' TOP                        ' PIC X(33).
 2243           05 VALUE ' TOWARD-GREATER             ' PIC X(33).
 2244           05 VALUE ' TOWARD-LESSER              ' PIC X(33).
 2245           05 VALUE ' TRAILING                   ' PIC X(33).
 2246           05 VALUE ' TRAILING-SIGN              ' PIC X(33).     UNIMPLEMENTED
 2247           05 VALUE 'VTRANSFORM                  ' PIC X(33).
 2248 GC1213    05 VALUE 'FTRIM                       ' PIC X(33).
 2249           05 VALUE ' TRUE                       ' PIC X(33).
 2250           05 VALUE ' TRUNCATION                 ' PIC X(33).
 2251           05 VALUE ' TYPE                       ' PIC X(33).
 2252           05 VALUE ' TYPEDEF                    ' PIC X(33).     UNIMPLEMENTED
 2253           05 VALUE ' UCS-4                      ' PIC X(33).     UNIMPLEMENTED
 2254           05 VALUE ' UNDERLINE                  ' PIC X(33).
 2255           05 VALUE ' UNIT                       ' PIC X(33).
 2256           05 VALUE ' UNIVERSAL                  ' PIC X(33).     UNIMPLEMENTED
 2257           05 VALUE 'VUNLOCK                     ' PIC X(33).
 2258           05 VALUE ' UNSIGNED                   ' PIC X(33).
 2259           05 VALUE ' UNSIGNED-INT               ' PIC X(33).
 2260           05 VALUE ' UNSIGNED-LONG              ' PIC X(33).
 2261           05 VALUE ' UNSIGNED-SHORT             ' PIC X(33).
 2262           05 VALUE 'VUNSTRING                   ' PIC X(33).
 2263           05 VALUE ' UNTIL                      ' PIC X(33).
 2264           05 VALUE 'KUP                         ' PIC X(33).
 2265           05 VALUE ' UPDATE                     ' PIC X(33).
 2266           05 VALUE ' UPON                       ' PIC X(33).
 2267           05 VALUE ' UPPER                      ' PIC X(33).
 2268 GC1213    05 VALUE 'FUPPER-CASE                 ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 52
====== ==============================================================================
 2269           05 VALUE ' USAGE                    ' PIC X(33).
 2270           05 VALUE 'VUSE                      ' PIC X(33).
 2271 GC0711    05 VALUE ' USER                     ' PIC X(33).
 2272           05 VALUE ' USER-DEFAULT             ' PIC X(33).
 2273           05 VALUE 'KUSING                    ' PIC X(33).
 2274           05 VALUE ' UTF-16                   ' PIC X(33).    UNIMPLEMENTED
 2275           05 VALUE ' UTF-8                    ' PIC X(33).    UNIMPLEMENTED
 2276           05 VALUE ' VAL-STATUS               ' PIC X(33).    UNIMPLEMENTED
 2277           05 VALUE ' VALID                    ' PIC X(33).    UNIMPLEMENTED
 2278           05 VALUE ' VALIDATE                 ' PIC X(33).    UNIMPLEMENTED
 2279           05 VALUE ' VALIDATE-STATUS          ' PIC X(33).    UNIMPLEMENTED
 2280 GC0712    05 VALUE 'AVALUE                    ' PIC X(33).
 2281           05 VALUE ' VALUES                   ' PIC X(33).
 2282 GC1213    05 VALUE 'FVARIANCE                 ' PIC X(33).
 2283           05 VALUE 'KVARYING                  ' PIC X(33).
 2284           05 VALUE ' VDISABLE                 ' PIC X(33).    UNIMPLEMENTED
 2285           05 VALUE ' WAIT                     ' PIC X(33).
 2286           05 VALUE 'VWHEN                     ' PIC X(33).
 2287 GC1213    05 VALUE 'FWHEN-COMPILED            ' PIC X(33).
 2288           05 VALUE ' WITH                     ' PIC X(33).
 2289           05 VALUE ' WORDS                    ' PIC X(33).
 2290           05 VALUE 'KWORKING-STORAGE          ' PIC X(33).
 2291           05 VALUE 'VWRITE                    ' PIC X(33).
 2292 GC1213    05 VALUE 'FYEAR-TO-YYYY             ' PIC X(33).
 2293           05 VALUE ' YYYYDDD                  ' PIC X(33).
 2294           05 VALUE ' YYYYMMDD                 ' PIC X(33).
 2295           05 VALUE ' ZERO                     ' PIC X(33).
 2296           05 VALUE ' ZERO-FILL                ' PIC X(33).    UNIMPLEMENTED
 2297           05 VALUE ' ZEROES                   ' PIC X(33).
 2298           05 VALUE ' ZEROS                    ' PIC X(33).
 2299      01  WS-Reserved-Word-Table-TXT REDEFINES WS-Reserved-Words-TXT.
 2300 GC1113    05 WS-Reserved-Word-TXT       OCCURS 754 TIMES
 2301                                         ASCENDING KEY
 2302                                             WS-RW-Word-TXT
 2303                                         INDEXED WS-RW-IDX.
 2304           10 WS-RW-Type-CD          PIC X(1).
 2305           10 WS-RW-Word-TXT         PIC X(32).
 2306
 2307      01  WS-Runtime-Switches.
 2308 GC0710    05 WS-RS-Duplicate-CHR          PIC X(1).
 2309           05 WS-RS-In-Which-Pgm-CHR       PIC X(1).
 2310              88 WS-RS-In-Main-Module-BOOL      VALUE 'M'.
 2311              88 WS-RS-In-Copybook-BOOL         VALUE 'C'.
 2312           05 WS-RS-Last-Token-Ended-Sent-CHR  PIC X(1).
 2313           05 WS-RS-Processing-PICTURE-CHR     PIC X(1).
 2314           05 WS-RS-Token-Ended-Sentence-CHR   PIC X(1).
 2315 GC0710    05 WS-RS-Verb-Has-Been-Found-CHR    PIC X(1).
 2316
 2317      01  WS-Saved-Section-TXT             PIC X(15).
 2318
 2319 GC1213 01  WS-Src-Dashes-TXT.
 2320 GC0712    05 VALUE '======'             PIC X(7).
 2321 GC0712    05 VALUE ALL '='              PIC X(128).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 53
====== ===============================================================================
 2322
 2323        01  WS-Src-Detail-Line-TXT.
 2324            05 WS-SDL-Line-NUM                    PIC ZZZZZ9.
 2325            05 FILLER                             PIC X(1).
 2326            05 WS-SDL-Statement-TXT               PIC X(256).
 2327
 2328 GC1213 01  WS-Src-Hold-TXT                       PIC X(256).
 2329
 2330        01  WS-Src-Line-NUM                       PIC 9(6).
 2331
 2332 GC1213 01  WS-Src-Lines-NUM                      USAGE BINARY-LONG.
 2333
 2334        01  WS-Src-SUB                            USAGE BINARY-LONG.
 2335
 2336        01  WS-Tally-QTY                          USAGE BINARY-LONG.
 2337
 2338        01  WS-Temp-10-Chars-TXT                  PIC X(10).
 2339
 2340        01  WS-Temp-32-Chars-1-TXT                PIC X(32).
 2341
 2342 GC0711 01  WS-Temp-32-Chars-2-TXT                PIC X(32).
 2343
 2344 GC0711 01  WS-Temp-32-Chars-3-TXT                PIC X(32).
 2345
 2346 GC0712 01  WS-Temp-65-Chars-TXT                  PIC X(65).
 2347
 2348        01  WS-Temp-256-Chars-TXT                 PIC X(256).
 2349
 2350        01  WS-Today-DT                           PIC 9(8).
 2351
 2352        01  WS-Token-Curr-TXT                     PIC X(32).
 2353
 2354        01  WS-Token-Curr-Uc-TXT                  PIC X(32).
 2355
 2356        01  WS-Token-Prev-TXT                     PIC X(32).
 2357
 2358        01  WS-Token-Search-TXT                   PIC X(32).
 2359
 2360        01  WS-Token-Type-CD                      PIC X(1).
 2361 GC0712     88 WS-TT-Token-Is-Argtype-BOOL        VALUE 'A'.
 2362            88 WS-TT-Token-Is-EOF-BOOL            VALUE HIGH-VALUES.
 2363 GC1213     88 WS-TT-Token-Is-Function-BOOL       VALUE 'F'.
 2364            88 WS-TT-Token-Is-Identifier-BOOL     VALUE 'I'.
 2365 GC0712     88 WS-TT-Token-Is-Keyword-BOOL        VALUE 'K', 'V', 'A'.
 2366            88 WS-TT-Token-Is-Lit-Alpha-BOOL      VALUE 'L'.
 2367            88 WS-TT-Token-Is-Lit-Number-BOOL     VALUE 'N'.
 2368            88 WS-TT-Token-Is-Verb-BOOL           VALUE 'V'.
 2369 GC1213     88 WS-TT-Token-Is-Reserved-Wd-BOOL    VALUE ' ', 'F'.
 2370
 2371        01  WS-Usernames-QTY                      USAGE BINARY-LONG.
 2372
 2373        01  WS-Version-TXT                        PIC X(23).
 2374
```

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

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

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

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

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

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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             .
```

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

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

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

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

```
2709            .
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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```

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

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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
```

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

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 83
======  =========================================================================================

 3466          510-Control-Record SECTION.
 3467              UNSTRING F-ES-2-256-TXT-256
 3468                  DELIMITED BY '"'
 3469                  INTO WS-Temp-10-Chars-TXT
 3470                       WS-Temp-256-Chars-TXT
 3471                       WS-Dummy-TXT
 3472 GC1010      IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
 3473 GC1010         TRIM(WS-Main-Module-Name-TXT) *> Main Pgm
 3474              SET WS-RS-In-Main-Module-BOOL TO TRUE
 3475              IF WS-Src-Line-NUM > 0
 3476                  READ F-Expanded-Src-FILE END-READ
 3477              END-IF
 3478          ELSE *> COPY
 3479              SET WS-RS-In-Copybook-BOOL TO TRUE
 3480          END-IF
 3481              .
```

====== ===

```
 3483        520-Expanded-Src-Record SECTION.
 3484            IF WS-RS-In-Main-Module-BOOL
 3485                ADD 1 To WS-Curr-Line-NUM
 3486 GC0712        READ F-Original-Src-FILE AT END CONTINUE END-READ
 3487                ADD 1 TO WS-Src-Line-NUM
 3488                MOVE SPACES TO WS-Src-Detail-Line-TXT
 3489                MOVE WS-Src-Line-NUM TO WS-SDL-Line-NUM
 3490 GC1213        MOVE F-Original-Src-REC TO WS-SDL-Statement-TXT
 3491 GC0712        MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
 3492 GC0712           TO WS-Temp-65-Chars-TXT
 3493 GC0712        INSPECT WS-Temp-65-Chars-TXT REPLACING ALL '.' BY SPACE
 3494 GC0712        EVALUATE TRUE
 3495 GC0712            WHEN F-OS-7-CHR = '/'
 3496 GC1213                MOVE SPACES TO WS-Src-Detail-Line-TXT
 3497 GC1213                PERFORM 530-Generate-Source-Line
 3498 GC1213                    UNTIL WS-Lines-Left-NUM = 0
 3499 GC0712            WHEN WS-Temp-65-Chars-TXT = "eject"
 3500 GC1213                MOVE SPACES TO WS-Src-Detail-Line-TXT
 3501 GC1213                PERFORM 530-Generate-Source-Line
 3502 GC1213                    UNTIL WS-Lines-Left-NUM = 0
 3503 GC0712                EXIT SECTION
 3504 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip1"
 3505 GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
 3506 GC0712                PERFORM 530-Generate-Source-Line
 3507 GC0712                EXIT SECTION
 3508 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip2"
 3509 GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
 3510 GC0712                PERFORM 530-Generate-Source-Line 2 TIMES
 3511 GC0712                EXIT SECTION
 3512 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip3"
 3513 GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
 3514 GC0712                PERFORM 530-Generate-Source-Line 3 TIMES
 3515 GC0712                EXIT SECTION
 3516 GC0712        END-EVALUATE
 3517                PERFORM 530-Generate-Source-Line
 3518            ELSE
 3519                IF F-Expanded-Src-REC NOT = SPACES
 3520                    MOVE SPACES TO WS-Src-Detail-Line-TXT
 3521 GC1213            MOVE F-Expanded-Src-REC
 3522                       TO WS-SDL-Statement-TXT
 3523 GC0712            MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
 3524 GC0712               TO WS-Temp-65-Chars-TXT
 3525 GC0712            INSPECT WS-Temp-65-Chars-TXT
 3526 GC0712                REPLACING ALL '.' BY SPACE
 3527 GC0712            EVALUATE TRUE
 3528 GC0712                WHEN WS-Temp-65-Chars-TXT = "eject"
 3529 GC0712                    MOVE 0 TO WS-Lines-Left-NUM
 3530 GC0712                    EXIT SECTION
 3531 GC0712                WHEN WS-Temp-65-Chars-TXT = "skip1"
 3532 GC0712                    MOVE SPACES TO WS-Src-Detail-Line-TXT
 3533 GC0712                    PERFORM 530-Generate-Source-Line
 3534 GC0712                    EXIT SECTION
```

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

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

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

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

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

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

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

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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: 91
===============  ==============================  ======  ===============  ========================
GCic             COB-SCR-F30                     181 [screenio    ]
GCic             COB-SCR-F31                     181 [screenio    ]
GCic             COB-SCR-F32                     181 [screenio    ]
GCic             COB-SCR-F33                     181 [screenio    ]
GCic             COB-SCR-F34                     181 [screenio    ]
GCic             COB-SCR-F35                     181 [screenio    ]
GCic             COB-SCR-F36                     181 [screenio    ]
GCic             COB-SCR-F37                     181 [screenio    ]
GCic             COB-SCR-F38                     181 [screenio    ]
GCic             COB-SCR-F39                     181 [screenio    ]
GCic             COB-SCR-F4                      181 [screenio    ]       851
GCic             COB-SCR-F40                     181 [screenio    ]
GCic             COB-SCR-F41                     181 [screenio    ]
GCic             COB-SCR-F42                     181 [screenio    ]
GCic             COB-SCR-F43                     181 [screenio    ]
GCic             COB-SCR-F44                     181 [screenio    ]
GCic             COB-SCR-F45                     181 [screenio    ]
GCic             COB-SCR-F46                     181 [screenio    ]
GCic             COB-SCR-F47                     181 [screenio    ]
GCic             COB-SCR-F48                     181 [screenio    ]
GCic             COB-SCR-F49                     181 [screenio    ]
GCic             COB-SCR-F5                      181 [screenio    ]       857
GCic             COB-SCR-F50                     181 [screenio    ]
GCic             COB-SCR-F51                     181 [screenio    ]
GCic             COB-SCR-F52                     181 [screenio    ]
GCic             COB-SCR-F53                     181 [screenio    ]
GCic             COB-SCR-F54                     181 [screenio    ]
GCic             COB-SCR-F55                     181 [screenio    ]
GCic             COB-SCR-F56                     181 [screenio    ]
GCic             COB-SCR-F57                     181 [screenio    ]
GCic             COB-SCR-F58                     181 [screenio    ]
GCic             COB-SCR-F59                     181 [screenio    ]
GCic             COB-SCR-F6                      181 [screenio    ]       862
GCic             COB-SCR-F60                     181 [screenio    ]
GCic             COB-SCR-F61                     181 [screenio    ]
GCic             COB-SCR-F62                     181 [screenio    ]
GCic             COB-SCR-F63                     181 [screenio    ]
GCic             COB-SCR-F64                     181 [screenio    ]
GCic             COB-SCR-F7                      181 [screenio    ]       868
GCic             COB-SCR-F8                      181 [screenio    ]       874
GCic             COB-SCR-F9                      181 [screenio    ]       880
GCic             COB-SCR-FATAL                   181 [screenio    ]
GCic             COB-SCR-INSERT                  181 [screenio    ]
GCic             COB-SCR-KEY-DOWN                181 [screenio    ]
GCic             COB-SCR-KEY-END                 181 [screenio    ]
GCic             COB-SCR-KEY-HOME                181 [screenio    ]
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GCic             COB-SCR-KEY_DOWN                181 [screenio    ]
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GCic             COB-SCR-MAX-FIELD               181 [screenio    ]
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GCic            WS-CS-LISTING-CHR                224  WORKING-STORAGE  600    685      822*
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GCic            WS-CS-NOFUNC-CHR                 225  WORKING-STORAGE  602    863      864*
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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*
                                                                     2923*
LISTING         WS-Curr-Line-NUM               1476 WORKING-STORAGE  2505* 2565* 2724*
                                                                     2764* 3213  3234
                                                                     3244  3258  3485*
LISTING         WS-Curr-Prog-ID-TXT            1478 WORKING-STORAGE  2495* 2822* 3209
                                                                     3230  3240  3254
LISTING         WS-Curr-Section-TXT            1483 WORKING-STORAGE  2727* 2732  2841*
                                                                     2867* 2913  2914*
                                                                     3212  3233  3243
                                                                     3257
LISTING         WS-Curr-Verb-TXT               1490 WORKING-STORAGE  2496* 2520* 2544*
                                                                     2928  2937
LISTING         WS-Delim-TXT                   1492 WORKING-STORAGE  2653* 2655  2673*
                                                                     2675  2678
LISTING         WS-Dummy-TXT                   1494 WORKING-STORAGE  2471* 2716* 2745*
                                                                     2778* 2783* 2784
                                                                     3471*
LISTING         WS-Expanded-Src-Fn-TXT         1496 WORKING-STORAGE  1416  2476* 2477C
LISTING         WS-Filename-TXT                1498 WORKING-STORAGE  2470* 2473  2744*
                                                                     2747
LISTING         WS-Flags-TXT                   1500 WORKING-STORAGE
LISTING         WS-Formatted-DT                1503 WORKING-STORAGE  2494* 3354  3377
                                                                     3611  3630
LISTING         WS-GI-Prog-ID-TXT              1506 WORKING-STORAGE  3281  3287  3292*
```

```
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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*
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                                                                         3095    3096    3097*
                                                                         3120*   3122    3123*
LISTING          WS-I-SUB                         1511 WORKING-STORAGE   2438*   2439    2440
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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
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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
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                                                                         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*
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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
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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*
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                                                                        3536*   3540*   3650
                                                                        3655    3657*   3659
                                                                        3666    3671    3673*
                                                                        3675    3680    3682*
                                                                        3684    3686*   3688
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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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                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 104
===============  ==============================  ======  ===============  ========================
LISTING          WS-TT-Token-Is-Identifier-BOOL  2364 WORKING-STORAGE    2697*   2844    2880
                                                                         2926    2934
LISTING          WS-TT-Token-Is-Keyword-BOOL     2365 WORKING-STORAGE    2515    2538    2815
                                                                         2834    2839    2860
                                                                         2865    2871    2921
LISTING          WS-TT-Token-Is-Lit-Alpha-BOOL   2366 WORKING-STORAGE    2620*   2646*
LISTING          WS-TT-Token-Is-Lit-Number-BOOL  2367 WORKING-STORAGE    2633*   2699    2773*
                                                                         2805*
LISTING          WS-TT-Token-Is-Reserved-Wd-BOOL 2369 WORKING-STORAGE    2516    2812*   2832*
                                                                         2858*   2875
LISTING          WS-TT-Token-Is-Verb-BOOL        2368 WORKING-STORAGE    2519    2691
LISTING          WS-Usernames-QTY                2371 WORKING-STORAGE    2504*
LISTING          WS-Version-TXT                  2373 WORKING-STORAGE    2436*   3350    3373
                                                                         3607    3626
LISTING          WS-XDL-Def-Line-NUM             2380 WORKING-STORAGE    3304*   3321*
LISTING          WS-XDL-Prog-ID-TXT              2376 WORKING-STORAGE    3301*   3313*   3317*
LISTING          WS-XDL-Ref-Flag-CHR             2386 WORKING-STORAGE    3333*
LISTING          WS-XDL-Ref-Line-NUM             2385 WORKING-STORAGE    3331*
LISTING          WS-XDL-Reference-TXT            2384 WORKING-STORAGE
LISTING          WS-XDL-Section-TXT              2382 WORKING-STORAGE    3303    3319*
LISTING          WS-XDL-Token-TXT                2378 WORKING-STORAGE    3302*   3314*   3318*
LISTING          WS-Xref-Detail-Line-TXT         2375 WORKING-STORAGE    3264*   3271    3274*
                                                                         3284    3288*   3297
                                                                         3316    3336    3399
                                                                         3402    3405*
LISTING          WS-Xref-Lines-Per-Rec-NUM       2389 WORKING-STORAGE    2450*   2454*   3326
```

6. STREAMIO

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

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

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

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

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

First, here is the STREAMIOcb.cpy copybook:

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

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

====== ===
    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

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

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

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

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

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```

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

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

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

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```

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

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


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

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

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

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```

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

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

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


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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement                                                               Page: 13
====== ================================================================================
   565            CALL "CBL_WRITE_FILE" USING L-SCB-Handle-NUM
   566                                        L-SCB-Offset-NUM
   567                                        WS-Arg-Length-NUM
   568                                        0
   569                                        L-Arg2-TXT
   570            PERFORM 040-Check-WRITE-SCB-Return-CD
   571            ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   572            .
   573        400-READ SECTION.
   574            CALL "C$PARAMSIZE" USING 2
   575            MOVE RETURN-CODE TO WS-Arg-Length-NUM
   576            MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   577            CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   578                                       L-SCB-Offset-NUM
   579                                       WS-Arg-Length-NUM
   580                                       0
   581                                       L-Arg2-TXT
   582            PERFORM 050-Check-READ-SCB-Return-CD
   583            ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   584            .
   585        500-READ-Delim SECTION.
   586            CALL "C$PARAMSIZE" USING 2
   587            MOVE RETURN-CODE TO WS-Arg-Length-NUM
   588            MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   589            CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   590                                       L-SCB-Offset-NUM
   591                                       WS-Arg-Length-NUM
   592                                       0
   593                                       L-Arg2-TXT
   594            PERFORM 050-Check-READ-SCB-Return-CD
   595            MOVE 0 TO WS-Tally-NUM
   596            INSPECT L-Arg2-TXT(1:WS-Arg-Length-NUM)
   597                TALLYING WS-Tally-NUM FOR ALL X"0A"
   598            IF WS-Tally-NUM = 0 *> No LF found - return truncated data and position past n
   ext LF (if any)
   599                IF L-Arg2-TXT(WS-Arg-Length-NUM:1) = X"0D"
   600                    MOVE SPACE TO L-Arg2-TXT(WS-Arg-Length-NUM:1)
   601                END-IF
   602                ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   603                MOVE 02 TO L-SCB-Return-CD
   604                MOVE 256 TO WS-Arg-Length-NUM
   605                PERFORM UNTIL 0 = 1
   606                    MOVE SPACES TO WS-Buffer-TXT
   607                    CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   608                                               L-SCB-Offset-NUM
   609                                               WS-Arg-Length-NUM
   610                                               0
   611                                               WS-Buffer-TXT
   612                    IF RETURN-CODE < 0

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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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