GnuCOBOL Sample Programs

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This manual documents GnuCOBOL 2.3 rc?, 00Dec2017 build.

Table of Contents

1. FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

2. COBDUMP

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

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

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

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

- Coding a GnuCOBOL subroutine

- Using `"USAGE POINTER"` data items

- Using the `"ANY LENGTH"` data item attribute

- Coding for an `"OPTIONAL"` subprogram argument

- Using the `"NUMBER-OF-CALL-PARAMETERS"` special register

- Using the `"C$PRINTABLE"` built-in system subroutine

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

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

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```

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

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

==

```
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 GnuCOBOL Interactive Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the next page.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                            Page: 1
====== =========================================================================================
    1         >>SOURCE FREE
    2 IDENTIFICATION DIVISION.
    3 PROGRAM-ID. colors.
    4 DATA DIVISION.
    5 SCREEN SECTION.
    6 01 S-COLORTST-SCR BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLANK SCREEN.
    7 05 LINE 01.
    8 10 COL 1 VALUE ' LOWLIGHT  -------- HIGHLIGHT  LOWLIGHT  -------- HIGHLIGHT'.
    9 05 LINE + 1.
   10 10 COL 1 VALUE ' --------  --------  --------  --------  --------  --------'.
   11 05 LINE + 1.
   12 10 COL 1 VALUE ' --------  --------  --------   REVERSE   REVERSE   REVERSE'.
   13 05 LINE + 1.
   14 10 COL 1 VALUE ' 01234567  01234567  01234567  01234567  01234567  01234567'.
   15 05 LINE + 1.
   16 10 COL 1 VALUE '0         0         0         0         0         0        '.
   17 05 LINE + 1.
   18 10 COL 1 VALUE '1         1         1         1         1         1        '.
   19 05 LINE + 1.
   20 10 COL 1 VALUE '2         2         2         2         2         2        '.
   21 05 LINE + 1.
   22 10 COL 1 VALUE '3    1    3    2    3    3    3    4    3    5    3    6    '.
   23 05 LINE + 1.
   24 10 COL 1 VALUE '4         4         4         4         4         4        '.
   25 05 LINE + 1.
   26 10 COL 1 VALUE '5         5         5         5         5         5        '.
   27 05 LINE + 1.
   28 10 COL 1 VALUE '6         6         6         6         6         6        '.
   29 05 LINE + 1.
   30 10 COL 1 VALUE '7         7         7         7         7         7        '.
   31 05 LINE + 1.
   32 10 COL 1 VALUE ' LOWLIGHT  -------- HIGHLIGHT  LOWLIGHT  -------- HIGHLIGHT'.
   33 05 LINE + 1.
   34 10 COL 1 VALUE '   BLINK      BLINK      BLINK     BLINK     BLINK      BLINK'.
   35 05 LINE + 1.
   36 10 COL 1 VALUE ' --------  --------  --------   REVERSE   REVERSE   REVERSE'.
   37 05 LINE + 1.
   38 10 COL 1 VALUE ' 01234567  01234567  01234567  01234567  01234567  01234567'.
   39 05 LINE + 1.
   40 10 COL 1 VALUE '0         0         0         0         0         0        '.
   41 05 LINE + 1.
   42 10 COL 1 VALUE '1         1         1         1         1         1        '.
   43 05 LINE + 1.
   44 10 COL 1 VALUE '2         2         2         2         2         2        '.
   45 05 LINE + 1.
   46 10 COL 1 VALUE '3    7    3    8    3    9    3    10   3    11   3    12   '.
   47 05 LINE + 1.
   48 10 COL 1 VALUE '4         4         4         4         4         4        '.
   49 05 LINE + 1.

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```

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

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                   2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                          Page: 3
====== ==========================================================================================
    99 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   100 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   101 05 LINE + 1.
   102 10 COL 2  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   103 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   104 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   105 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   106 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   107 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   108 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   109 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   110 05 LINE + 1.
   111 10 COL 2  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   112 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   113 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   114 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   115 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   116 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   117 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   118 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   119 05 LINE + 1.
   120 10 COL 2  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
   121 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
   122 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
   123 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
   124 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
   125 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
   126 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
   127 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
   128 *> #2
   129 05 LINE 05.
   130 10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 VALUE 'X'.
   131 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 VALUE 'X'.
   132 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 VALUE 'X'.
   133 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 VALUE 'X'.
   134 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 VALUE 'X'.
   135 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 VALUE 'X'.
   136 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 VALUE 'X'.
   137 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 VALUE 'X'.
   138 05 LINE + 1.
   139 10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 VALUE 'X'.
   140 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 VALUE 'X'.
   141 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 VALUE 'X'.
   142 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 VALUE 'X'.
   143 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 VALUE 'X'.
   144 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 VALUE 'X'.
   145 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 VALUE 'X'.
   146 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 VALUE 'X'.
   147 05 LINE + 1.
```

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

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

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

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Line   Statement   Page: 7
====== ===
   295 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   296 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   297 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   298 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   299 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   300 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   301 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   302 05 LINE + 1.
   303 10 COL 32 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   304 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   305 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   306 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   307 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   308 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   309 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   310 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   311 05 LINE + 1.
   312 10 COL 32 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   313 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   314 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   315 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   316 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   317 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   318 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   319 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   320 05 LINE + 1.
   321 10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   322 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   323 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   324 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   325 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   326 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   327 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   328 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   329 05 LINE + 1.
   330 10 COL 32 BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   331 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   332 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   333 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   334 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   335 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   336 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   337 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   338 05 LINE + 1.
   339 10 COL 32 BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   340 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   341 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   342 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   343 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.

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

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

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GNU COBOL 2.1 23NOV2013 Source Listing                                   2014/03/27
                               C:/Users/tda010/Documents/Programs/Samples/colors.cbl
Line    Statement                                                           Page: 10
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   442 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   443 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   444 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   445 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   446 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   447 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   448 05 LINE + 1.
   449 10 COL 52  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   450 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   451 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   452 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   453 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   454 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   455 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   456 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   457 05 LINE + 1.
   458 10 COL 52  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   459 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   460 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   461 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   462 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   463 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   464 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   465 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   466 05 LINE + 1.
   467 10 COL 52  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   468 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   469 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   470 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   471 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   472 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   473 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   474 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   475 05 LINE + 1.
   476 10 COL 52  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   477 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   478 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   479 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   480 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   481 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   482 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   483 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   484 05 LINE + 1.
   485 10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   486 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   487 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   488 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   489 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.
   490 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE ’X’.


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

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   540 10 COL 02  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE ’X’.
   541 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE ’X’.
   542 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE ’X’.
   543 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE ’X’.
   544 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE ’X’.
   545 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE ’X’.
   546 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE ’X’.
   547 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE ’X’.
   548 05 LINE + 1.
   549 10 COL 02  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE ’X’.
   550 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE ’X’.
   551 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE ’X’.
   552 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE ’X’.
   553 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE ’X’.
   554 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE ’X’.
   555 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE ’X’.
   556 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE ’X’.
   557 05 LINE + 1.
   558 10 COL 02  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE ’X’.
   559 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE ’X’.
   560 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE ’X’.
   561 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE ’X’.
   562 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE ’X’.
   563 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE ’X’.
   564 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE ’X’.
   565 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE ’X’.
   566 *> #8
   567 05 LINE 17.
   568 10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
   569 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
   570 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
   571 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
   572 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
   573 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
   574 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
   575 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
   576 05 LINE + 1.
   577 10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
   578 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
   579 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
   580 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
   581 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
   582 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
   583 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
   584 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
   585 05 LINE + 1.
   586 10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
   587 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
   588 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
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Line   Statement   Page: 13
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   589 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   590 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   591 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   592 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   593 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   594 05 LINE + 1.
   595 10 COL 12 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   596 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   597 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   598 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   599 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   600 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   601 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   602 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   603 05 LINE + 1.
   604 10 COL 12 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   605 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   606 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   607 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   608 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   609 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   610 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   611 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   612 05 LINE + 1.
   613 10 COL 12 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   614 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   615 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   616 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   617 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   618 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   619 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   620 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   621 05 LINE + 1.
   622 10 COL 12 BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   623 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   624 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   625 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   626 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   627 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   628 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   629 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   630 05 LINE + 1.
   631 10 COL 12 BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   632 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   633 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   634 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   635 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   636 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   637 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK VALUE 'X'.

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Line   Statement   Page: 14
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   638 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   639 *> #9
   640 05 LINE 17.
   641 10 COL 22 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   642 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   643 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   644 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   645 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   646 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   647 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   648 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   649 05 LINE + 1.
   650 10 COL 22 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   651 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   652 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   653 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   654 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   655 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   656 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   657 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   658 05 LINE + 1.
   659 10 COL 22 BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   660 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   661 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   662 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   663 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   664 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   665 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   666 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   667 05 LINE + 1.
   668 10 COL 22 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   669 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   670 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   671 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   672 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   673 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   674 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   675 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   676 05 LINE + 1.
   677 10 COL 22 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   678 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   679 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   680 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   681 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   682 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   683 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
   684 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
   685 05 LINE + 1.
   686 10 COL 22 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.

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

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


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```

====== ==
   785 *> #11
   786 05 LINE 17.
   787 10 COL 42 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE ’X’.
   788 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE ’X’.
   789 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE ’X’.
   790 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE ’X’.
   791 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE ’X’.
   792 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE ’X’.
   793 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE ’X’.
   794 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE ’X’.
   795 05 LINE + 1.
   796 10 COL 42 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE ’X’.
   797 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE ’X’.
   798 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE ’X’.
   799 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE ’X’.
   800 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE ’X’.
   801 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE ’X’.
   802 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE ’X’.
   803 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE ’X’.
   804 05 LINE + 1.
   805 10 COL 42 BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE ’X’.
   806 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE ’X’.
   807 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE ’X’.
   808 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE ’X’.
   809 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE ’X’.
   810 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE ’X’.
   811 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE ’X’.
   812 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE ’X’.
   813 05 LINE + 1.
   814 10 COL 42 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE ’X’.
   815 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE ’X’.
   816 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE ’X’.
   817 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE ’X’.
   818 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE ’X’.
   819 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE ’X’.
   820 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE ’X’.
   821 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE ’X’.
   822 05 LINE + 1.
   823 10 COL 42 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE ’X’.
   824 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE ’X’.
   825 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE ’X’.
   826 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE ’X’.
   827 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE ’X’.
   828 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE ’X’.
   829 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE ’X’.
   830 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE ’X’.
   831 05 LINE + 1.
   832 10 COL 42 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE ’X’.
   833 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE ’X’.

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

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


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

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

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

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

4. DAY-FROM-DATE

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

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

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

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

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

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

```
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

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
```
==

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

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

5. GCic

This is MUCH more than a mere demonstration program –æ 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 2.2 20JUL2017  Source Listing                                    2017/07/22
                                          /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) 2009-2017, Gary L. Cutler, GPL            Page: 1
```

====== ==

```
       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      **
```

==
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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                        /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          **

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

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                   2017/07/22
                                        /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        *>****************************************************************
   155        *>
   156         ENVIRONMENT DIVISION.
   157         CONFIGURATION SECTION.
   158         REPOSITORY.
   159             FUNCTION ALL INTRINSIC.
   160         INPUT-OUTPUT SECTION.
   161         FILE-CONTROL.
   162 GC1010     SELECT F-Cobc-Output-FILE   ASSIGN TO WS-Listing-Filename-TXT
   163                                         ORGANIZATION IS LINE SEQUENTIAL.
   164
   165            SELECT F-Source-Code-FILE   ASSIGN TO WS-File-Name-TXT
   166                                         ORGANIZATION IS LINE SEQUENTIAL
   167                                         FILE STATUS IS WS-FSM-Status-CD.
```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 5
======  ============================================================================

   169          DATA DIVISION.
   170          FILE SECTION.
   171          FD  F-Cobc-Output-FILE.
   172          01  F-Cobc-Output-REC                 PIC X(256).
   173
   174          FD  F-Source-Code-FILE.
   175 GC0313 01  F-Source-Code-REC                   PIC X(256).
   176
   177          WORKING-STORAGE SECTION.
   178          COPY screenio.
        78 COB-COLOR-BLACK VALUE 0.
        78 COB-COLOR-BLUE VALUE 1.
        78 COB-COLOR-GREEN VALUE 2.
        78 COB-COLOR-CYAN VALUE 3.
        78 COB-COLOR-RED VALUE 4.
        78 COB-COLOR-MAGENTA VALUE 5.
        78 COB-COLOR-YELLOW VALUE 6.
        78 COB-COLOR-WHITE VALUE 7.
        78 COB-SCR-OK VALUE 0.
        78 COB-SCR-F1 VALUE 1001.
        78 COB-SCR-F2 VALUE 1002.
        78 COB-SCR-F3 VALUE 1003.
        78 COB-SCR-F4 VALUE 1004.
        78 COB-SCR-F5 VALUE 1005.
        78 COB-SCR-F6 VALUE 1006.
        78 COB-SCR-F7 VALUE 1007.
        78 COB-SCR-F8 VALUE 1008.
        78 COB-SCR-F9 VALUE 1009.
        78 COB-SCR-F10 VALUE 1010.
        78 COB-SCR-F11 VALUE 1011.
        78 COB-SCR-F12 VALUE 1012.
        78 COB-SCR-F13 VALUE 1013.
        78 COB-SCR-F14 VALUE 1014.
        78 COB-SCR-F15 VALUE 1015.
        78 COB-SCR-F16 VALUE 1016.
        78 COB-SCR-F17 VALUE 1017.
        78 COB-SCR-F18 VALUE 1018.
        78 COB-SCR-F19 VALUE 1019.
        78 COB-SCR-F20 VALUE 1020.
        78 COB-SCR-F21 VALUE 1021.
        78 COB-SCR-F22 VALUE 1022.
        78 COB-SCR-F23 VALUE 1023.
        78 COB-SCR-F24 VALUE 1024.
        78 COB-SCR-F25 VALUE 1025.
        78 COB-SCR-F26 VALUE 1026.
        78 COB-SCR-F27 VALUE 1027.
        78 COB-SCR-F28 VALUE 1028.
        78 COB-SCR-F29 VALUE 1029.
        78 COB-SCR-F30 VALUE 1030.
        78 COB-SCR-F31 VALUE 1031.
        78 COB-SCR-F32 VALUE 1032.
        78 COB-SCR-F33 VALUE 1033.

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

```
====== =================================================================================
       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_DOWN VALUE 2002.
       78 COB-SCR-KEY-UP VALUE 2003.
       78 COB-SCR-KEY-DOWN VALUE 2004.
       78 COB-SCR-ESC VALUE 2005.
       78 COB-SCR-PRINT VALUE 2006.
       78 COB-SCR-NO-FIELD VALUE 8000.
       78 COB-SCR-TIME-OUT VALUE 8001.
       78 COB-SCR-FATAL VALUE 9000.
       78 COB-SCR-MAX-FIELD VALUE 9001.
   179
   180 GC0712 01  WS-Compilation-Switches-TXT.
   181 GC0712     05 WS-CS-Args-TXT VALUE SPACES.
   182 GC0712         10 WS-CS-Arg-H1-TXT              PIC X(76).
   183 GC0712         10 WS-CS-Arg-H2-TXT              PIC X(76).
   184 GC0712     05 WS-CS-Filenames-TXT.
   185 GC0712         10 VALUE 'BS2000'               PIC X(9).
   186 GC0712         10 VALUE 'COBOL85'              PIC X(9).
   187 GC0712         10 VALUE 'COBOL2002'            PIC X(9).
   188 GC0712         10 VALUE 'DEFAULT'              PIC X(9).
   189 GC0712         10 VALUE 'IBM'                  PIC X(9).
   190 GC0712         10 VALUE 'MF'                   PIC X(9).
```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 7
====== ==============================================================================
   191 GC0712         10 VALUE 'MVS'                  PIC X(9).
   192 GC0712      05 WS-CS-Filenames-Table-TXT REDEFINES WS-CS-Filenames-TXT.
   193 GC0712         10 WS-CS-Filename-TXT           OCCURS 7 TIMES
   194 GC0712                                         PIC X(9).
   195 GC0712 >>IF F12 < 1
   196 GC0712      05 WS-CS-Config-NUM     VALUE 4    PIC 9(1).
   197 GC0712 >>ELIF F12 > 7
   198 GC0712      05 WS-CS-Config-NUM     VALUE 4    PIC 9(1).
   199 GC0712 >>ELSE
   200 GC0712      05 WS-CS-Config-NUM     VALUE F12  PIC 9(1).
   201 GC0712 >>END-IF
   202 GC0712      05 WS-CS-Extra-TXT VALUE SPACES.
   203 GC0712         10 WS-CS-Extra-H1-TXT           PIC X(76).
   204 GC0712         10 WS-CS-Extra-H2-TXT           PIC X(76).
   205 GC0712      05 WS-CS-Switch-Defaults-TXT.
   206 GC0712         10 VALUE F1                      PIC 9(1). *> WS-CS-DEBUG-CHR
   207 GC0712         10 VALUE F4                      PIC 9(1). *> WS-CS-EXECUTE-CHR
   208 GC0712         10 VALUE F8                      PIC 9(1). *> WS-CS-FREE-CHR
   209 GC0712         10 VALUE F3                      PIC 9(1). *> WS-CS-LIBRARY-CHR
   210 GC0712         10 VALUE F5                      PIC 9(1). *> WS-CS-LISTING-CHR
   211 GC0712         10 VALUE F6                      PIC 9(1). *> WS-CS-NOFUNC-CHR
   212 GC0712         10 VALUE F9                      PIC 9(1). *> WS-CS-NOTRUNC-CHR
   213 GC0712         10 VALUE F2                      PIC 9(1). *> WS-CS-TRACEALL-CHR
   214 GC0712         10 VALUE F7                      PIC 9(1). *> WS-CS-WARNALL-CHR
   215 GC0712      05 WS-CS-All-Switches-TXT REDEFINES
   216 GC0712                         WS-CS-Switch-Defaults-TXT.
   217 GC0712         10 WS-CS-DEBUG-CHR              PIC X(1).
   218 GC0712         10 WS-CS-EXECUTE-CHR            PIC X(1).
   219 GC0712         10 WS-CS-FREE-CHR               PIC X(1).
   220 GC0712         10 WS-CS-LIBRARY-CHR            PIC X(1).
   221 GC0712         10 WS-CS-LISTING-CHR            PIC X(1).
   222 GC0712         10 WS-CS-NOFUNC-CHR             PIC X(1).
   223 GC0712         10 WS-CS-NOTRUNC-CHR            PIC X(1).
   224 GC0712         10 WS-CS-TRACEALL-CHR           PIC X(1).
   225 GC0712         10 WS-CS-WARNALL-CHR            PIC X(1).
   226
   227 GC0909 01  WS-Cmd-TXT                          PIC X(512).
   228
   229 GC0712 01  WS-Cmd-Args-TXT                     PIC X(256).
   230
   231 GC0712 01  WS-Cmd-End-Quote-CHR                PIC X(1).
   232
   233 GC0712 01  WS-Cmd-SUB                          USAGE BINARY-LONG.
   234
   235        01  WS-Cobc-Cmd-TXT                     PIC X(256).
   236
   237        01  WS-Config-Fn-TXT                    PIC X(12).
   238
   239 GC1113 01  WS-Delete-Fn-TXT                    PIC X(256).
   240
   241        01  WS-File-Name-TXT.
   242            05 WS-FN-CHR                         OCCURS 256 TIMES
   243                                                PIC X(1).


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GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL              Page: 7
```

Line   Statement   Page: 8
====== ==
   244
   245   01 WS-File-Status-Message-TXT.
   246   05 VALUE 'Status Code: '   PIC X(13).
   247   05 WS-FSM-Status-CD   PIC 9(2).
   248   05 VALUE ', Meaning: '   PIC X(11).
   249   05 WS-FSM-Msg-TXT   PIC X(25).
   250
   251 GC0909 01 WS-Horizontal-Line-TXT   PIC X(80).
   252 GC0909
   253   01 WS-I-SUB   USAGE BINARY-LONG.
   254
   255   01 WS-J-SUB   USAGE BINARY-LONG.
   256
   257 GC1213 01 WS-Listing-CD VALUE F5   PIC 9(1).
   258
   259 GC0712 01 WS-Listing-Filename-TXT   PIC X(256).
   260
   261 GC1213 01 WS-Listing-TXT VALUE SPACES   PIC X(27).
   262
   263   01 WS-OC-Compile-DT   PIC XXXX/XX/XXBXX/XX.
   264
   265 GC0712 >>IF OS = 'CYGWIN'
   266 GC0712 01 WS-OS-Dir-CHR   VALUE '/'   PIC X(1).
   267 GC0712 78 WS-OS-Exe-Ext-CONST   VALUE '.exe'.
   268 GC0712 78 WS-OS-Lib-Ext-CONST   VALUE '.dll'.
   269 GC0712 78 WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   270 GC0712 01 WS-OS-Type-CD   VALUE 2   PIC 9(1).
   271 GC0712 >>ELIF OS = 'MINGW'
   272 GC0712 01 WS-OS-Dir-CHR   VALUE '\'   PIC X(1).
   273 GC0712 78 WS-OS-Exe-Ext-CONST   VALUE '.exe'.
   274 GC0712 78 WS-OS-Lib-Ext-CONST   VALUE '.dll'.
   275 GC0712 78 WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   276 GC0712 01 WS-OS-Type-CD   VALUE 5   PIC 9(1).
   277 GC0712 >>ELIF OS = 'OSX'
   278 GC0712 01 WS-OS-Dir-CHR   VALUE '/'   PIC X(1).
   279 GC0712 78 WS-OS-Exe-Ext-CONST   VALUE ' '.
   280 GC0712 78 WS-OS-Lib-Ext-CONST   VALUE '.dylib'.
   281 GC0712 78 WS-OS-Lib-Type-CONST VALUE 'DYLIB)'.
   282 GC0712 01 WS-OS-Type-CD   VALUE 4   PIC 9(1).
   283 GC0712 >>ELIF OS = 'UNIX'
   284 GC0712 01 WS-OS-Dir-CHR   VALUE '/'   PIC X(1).
   285 GC0712 78 WS-OS-Exe-Ext-CONST   VALUE ' '.
   286 GC0712 78 WS-OS-Lib-Ext-CONST   VALUE '.so'.
   287 GC0712 78 WS-OS-Lib-Type-CONST VALUE 'SO)'.
   288 GC0712 01 WS-OS-Type-CD   VALUE 3   PIC 9(1).
   289 GC0712 >>ELIF OS = 'WINDOWS'
   290 GC0712 01 WS-OS-Dir-CHR   VALUE '\'   PIC X(1).
   291 GC0712 78 WS-OS-Exe-Ext-CONST   VALUE '.exe'.
   292 GC0712 78 WS-OS-Lib-Ext-CONST   VALUE '.dll'.
   293 GC0712 78 WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   294 GC0712 01 WS-OS-Type-CD   VALUE 1   PIC 9(1).
   295 GC0712 >>END-IF
   296 GC0909   88 WS-OS-Windows-BOOL VALUE 1, 5.

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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                        2017/07/22
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 9
====== ===================================================================================
   297 GC0909      88 WS-OS-Cygwin-BOOL   VALUE 2.
   298 GC0712      88 WS-OS-UNIX-BOOL     VALUE 3, 4.
   299 GC0712      88 WS-OS-OSX-BOOL      VALUE 4.
   300
   301      01  WS-OS-Type-FILLER-TXT.
   302          05 VALUE 'Windows'                 PIC X(14).
   303          05 VALUE 'Windows/Cygwin'          PIC X(14).
   304          05 VALUE 'UNIX/Linux'              PIC X(14).
   305          05 VALUE 'OSX'                      PIC X(14).
   306          05 VALUE 'Windows/MinGW'           PIC X(14).
   307      01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
   308          05 WS-OS-Type-TXT                  OCCURS 5 TIMES
   309                                              PIC X(14).
   310
   311      01  WS-Output-Msg-TXT                  PIC X(80).
   312
   313      01  WS-Path-Delimiter-CHR              PIC X(1).
   314
   315      01  WS-Prog-Extension-TXT              PIC X(256).
   316
   317      01  WS-Prog-Folder-TXT                 PIC X(256).
   318
   319 GC0712 01  WS-Prog-File-Name-TXT.
   320 GC0712      05 WS-PFN-CHR                    OCCURS 256 TIMES
   321 GC0712                                       PIC X(1).
   322
   323 GC0712 01  WS-Pgm-Nm-TXT                     PIC X(31).
   324
   325      01  WS-Runtime-Switches-TXT.
   326          05 WS-RS-Compile-OK-CHR            PIC X(1).
   327             88 WS-RS-Compile-OK-BOOL        VALUE 'Y'.
   328 GC0909      88 WS-RS-Compile-OK-Warn-BOOL   VALUE 'W'.
   329             88 WS-RS-Compile-Failed-BOOL    VALUE 'N'.
   330 GC0609      05 WS-RS-Complete-CHR           PIC X(1).
   331 GC0609         88 WS-RS-Complete-BOOL       VALUE 'Y'.
   332 GC0609         88 WS-RS-Not-Complete-BOOL   VALUE 'N'.
   333 GC0712      05 WS-RS-Quote-CHR              PIC X(1).
   334 GC0712         88 WS-RS-Double-Quote-Used-BOOL  VALUE 'Y' FALSE 'N'.
   335 GC0809      05 WS-RS-IDENT-DIV-CHR          PIC X(1).
   336 GC0809         88 WS-RS-1st-Prog-Complete-BOOL  VALUE 'Y'.
   337 GC0809         88 WS-RS-More-To-1st-Prog-BOOL   VALUE 'N'.
   338          05 WS-RS-No-Switch-Chgs-CHR        PIC X(1).
   339             88 WS-RS-No-Switch-Changes-BOOL VALUE 'Y'.
   340             88 WS-RS-Switch-Changes-BOOL    VALUE 'N'.
   341 GC0709      05 WS-RS-Output-File-Busy-CHR   PIC X(1).
   342 GC0709         88 WS-RS-Output-File-Busy-BOOL    VALUE 'Y'.
   343 GC0709         88 WS-RS-Output-File-Avail-BOOL   VALUE 'N'.
   344 GC0809      05 WS-RS-Source-Record-Type-CHR PIC X(1).
   345 GC0809         88 WS-RS-Source-Rec-Linkage-BOOL  VALUE 'L'.
   346 GC0809         88 WS-RS-Source-Rec-Ident-BOOL    VALUE 'I'.
   347 GC0712         88 WS-RS-Source-Rec-Ignored-BOOL  VALUE ' '.
   348          05 WS-RS-Switch-Error-CHR          PIC X(1).
   349             88 WS-RS-Switch-Is-Bad-BOOL     VALUE 'Y'.

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```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                      2017/07/22
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 10
====== ===============================================================================
   350               88 WS-RS-Switch-Is-Good-BOOL        VALUE 'N'.
   351
   352       01  WS-Tally-QTY                            USAGE BINARY-LONG.
```

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

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 11
======  ======================================================================================

   354         SCREEN SECTION.
   355       *>
   356       *> Here is the layout of the GCic screen.
   357       *>
   358       *> The sample screen below shows how the screen would look if the LINEDRAW
   359       *> configuration setting is set to a value of 2
   360       *>
   361       *> The following sample screen layout shows how the screen looks with line-drawing
   362       *> characters disabled.
   363       *>
   364       *>            1         2         3         4         5         6         7         8
   365       *>123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
   366       *>========================================================================================
   367   01 *> GCic (2011/07/11 08:52) - GNU COBOL V2.1 23NOV2013 Interactive Compilation
   368   02 *>+-----------------------------------------------------------------------------------+
   369   03 *>| Folder:   E:\GNU COBOL\Samples                                                    |
   370   04 *>| Filename: GCic.cbl                                                                |
   371   05 *>+-----------------------------------------------------------------------------------+
   372   06 *> Set/Clr Switches Via F1-F9; Set Config Via F12; ENTER Key Compiles; ESC Quits
   373   07 *>+---------------------------------------------------------------+-----------+
   374   08 *>| F1  Assume WITH DEBUGGING MODE   F6  "FUNCTION" Is Optional    | Current   |
   375   09 *>| F2  Procedure+Statement Trace    F7  Enable All Warnings       | Config:   |
   376   10 *>| F3  Make A Library (DLL)         F8  Source Is Free-Format     | XXXXXXXXXX |
   377   11 *>| F4  Execute If Compilation OK    F9  No COMP/BINARY Truncation |           |
   378   12 *>| F5 >Produce Listing (Landscape)                               |           |
   379   13 *>+---------------------------------------------------------------+-----------+
   380   14 *> Extra "cobc" Switches, If Any ("-save-temps=xxx" Prevents Listings):
   381   15 *>+-----------------------------------------------------------------------------------+
   382   16 *>| _____ |
   383   17 *>| _____ |
   384   18 *>+-----------------------------------------------------------------------------------+
   385   19 *> Program Execution Arguments, If Any:
   386   20 *>+-----------------------------------------------------------------------------------+
   387   21 *>| _____ |
   388   22 *>| _____ |
   389   23 *>+-----------------------------------------------------------------------------------+
   390   24 *> GCic Copyright (C) 2009-2017, Gary L. Cutler, GPL
   391       *>========================================================================================
   392       *>123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
   393       *>            1         2         3         4         5         6         7         8
   394       *>
   395       *> If this program is run on Windows, it must run with codepage 437 activated to
   396       *> display the line-drawing characters.  With a native Windows build or a
   397       *> Windows/MinGW build, one could use the command 'chcp 437' to set that codepage
   398       *> for display within a Windows console window (that should be the default though).
   399       *> With a Windows/Cygwin build, set the environment variable CYGWIN to a value of
   400       *> 'codepage:oem' (this cannot be done from within the program though - you will
   401       *> have to use the 'Computer/Advanced System Settings/Environment Variables' (Vista
   402       *> or Windows 7) function to define the variable.  XP Users: use 'My Computer/
   403       *> Properties/Advanced/Environment Variables'.
   404       *>
   405       *> OSX users may use line drawing characters in this and any GNU COBOL program
```

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GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL   Page: 11

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 12
====== ==============================================================================
   406        *> simply by setting their 'terminal' application's font to "Lucida Console".
   407        *>
   408        >>IF LINEDRAW IS EQUAL TO 0
   409        78 LD-UL-Corner                 VALUE ' '.
   410        78 LD-LL-Corner                 VALUE ' '.
   411        78 LD-UR-Corner                 VALUE ' '.
   412        78 LD-LR-Corner                 VALUE ' '.
   413        78 LD-Upper-T                   VALUE ' '.
   414        78 LD-Lower-T                   VALUE ' '.
   415        78 LD-Horiz-Line                VALUE ' '.
   416        78 LD-Vert-Line                 VALUE ' '.
   417        >>ELIF LINEDRAW IS EQUAL TO 1
   418        78 LD-UL-Corner                 VALUE X'DA'.
   419        78 LD-LL-Corner                 VALUE X'C0'.
   420        78 LD-UR-Corner                 VALUE X'BF'.
   421        78 LD-LR-Corner                 VALUE X'D9'.
   422        78 LD-Upper-T                   VALUE X'C2'.
   423        78 LD-Lower-T                   VALUE X'C1'.
   424        78 LD-Horiz-Line                VALUE X'C4'.
   425        78 LD-Vert-Line                 VALUE X'B3'.
   426        >>ELSE
   427        78 LD-UL-Corner                 VALUE '+'.
   428        78 LD-LL-Corner                 VALUE '+'.
   429        78 LD-UR-Corner                 VALUE '+'.
   430        78 LD-LR-Corner                 VALUE '+'.
   431        78 LD-Upper-T                   VALUE '+'.
   432        78 LD-Lower-T                   VALUE '+'.
   433        78 LD-Horiz-Line                VALUE '-'.
   434        78 LD-Vert-Line                 VALUE '|'.
   435        >>END-IF
   436
   437        01 S-Blank-SCR LINE 1 COLUMN 1 BLANK SCREEN.
   438
   439        01 S-Switches-SCR BACKGROUND-COLOR COB-COLOR-BLACK
   440                          FOREGROUND-COLOR COB-COLOR-WHITE AUTO.
   441        *>
   442        *> GENERAL SCREEN FRAMEWORK
   443        *>
   444           03 BACKGROUND-COLOR COB-COLOR-BLACK
   445              FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   446 GC0712     05 LINE 02 COL 01          VALUE LD-UL-Corner.
   447 GC0712     05        COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   448           05        COL 80          VALUE LD-UR-Corner.
   449
   450 GC0712     05 LINE 03 COL 01          VALUE LD-Vert-Line.
   451           05        COL 80          VALUE LD-Vert-Line.
   452
   453 GC0712     05 LINE 04 COL 01          VALUE LD-Vert-Line.
   454           05        COL 80          VALUE LD-Vert-Line.
   455
   456 GC0712     05 LINE 05 COL 01          VALUE LD-LL-Corner.
   457 GC0712     05        COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   458           05        COL 80          VALUE LD-LR-Corner.

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GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL           Page: 12
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====== ==
   459
   460 GC0712   05 LINE 07 COL 01   VALUE LD-UL-Corner.
   461 GC0712   05   COL 02 PIC X(65) FROM WS-Horizontal-Line-TXT.
   462 GC0712   05   COL 67   VALUE LD-Upper-T.
   463 GC0712   05   COL 68 PIC X(12) FROM WS-Horizontal-Line-TXT.
   464   05   COL 80   VALUE LD-UR-Corner.
   465
   466 GC0712   05 LINE 08 COL 01   VALUE LD-Vert-Line.
   467 GC0712   05   COL 67   VALUE LD-Vert-Line.
   468   05   COL 80   VALUE LD-Vert-Line.
   469
   470 GC0712   05 LINE 09 COL 01   VALUE LD-Vert-Line.
   471 GC0712   05   COL 67   VALUE LD-Vert-Line.
   472   05   COL 80   VALUE LD-Vert-Line.
   473
   474 GC0712   05 LINE 10 COL 01   VALUE LD-Vert-Line.
   475 GC0712   05   COL 67   VALUE LD-Vert-Line.
   476   05   COL 80   VALUE LD-Vert-Line.
   477
   478 GC0712   05 LINE 11 COL 01   VALUE LD-Vert-Line.
   479 GC0712   05   COL 67   VALUE LD-Vert-Line.
   480   05   COL 80   VALUE LD-Vert-Line.
   481
   482 GC0712   05 LINE 12 COL 01   VALUE LD-Vert-Line.
   483 GC0712   05   COL 67   VALUE LD-Vert-Line.
   484   05   COL 80   VALUE LD-Vert-Line.
   485
   486 GC0712   05 LINE 13 COL 01   VALUE LD-LL-Corner.
   487 GC0712   05   COL 02 PIC X(65) FROM WS-Horizontal-Line-TXT.
   488 GC0712   05   COL 67   VALUE LD-Lower-T.
   489 GC0712   05   COL 68 PIC X(12) FROM WS-Horizontal-Line-TXT.
   490   05   COL 80   VALUE LD-LR-Corner.
   491
   492 GC0712   05 LINE 15 COL 01   VALUE LD-UL-Corner.
   493 GC0712   05   COL 02 PIC X(78) FROM WS-Horizontal-Line-TXT.
   494   05   COL 80   VALUE LD-UR-Corner.
   495
   496 GC0712   05 LINE 16 COL 01   VALUE LD-Vert-Line.
   497   05   COL 80   VALUE LD-Vert-Line.
   498
   499 GC0712   05 LINE 17 COL 01   VALUE LD-Vert-Line.
   500   05   COL 80   VALUE LD-Vert-Line.
   501
   502 GC0712   05 LINE 18 COL 01   VALUE LD-LL-Corner.
   503 GC0712   05   COL 02 PIC X(78) FROM WS-Horizontal-Line-TXT.
   504   05   COL 80   VALUE LD-LR-Corner.
   505
   506 GC0712   05 LINE 20 COL 01   VALUE LD-UL-Corner.
   507 GC0712   05   COL 02 PIC X(78) FROM WS-Horizontal-Line-TXT.
   508   05   COL 80   VALUE LD-UR-Corner.
   509
   510 GC0712   05 LINE 21 COL 01   VALUE LD-Vert-Line.
   511   05   COL 80   VALUE LD-Vert-Line.

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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                        2017/07/22
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 14
====== ===================================================================================
   512
   513 GC0712       05 LINE 22 COL 01              VALUE LD-Vert-Line.
   514              05         COL 80              VALUE LD-Vert-Line.
   515
   516 GC0712       05 LINE 23 COL 01              VALUE LD-LL-Corner.
   517 GC0712       05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   518              05         COL 80              VALUE LD-LR-Corner.
   519      *>
   520      *> TOP AND BOTTOM LINES
   521      *>
   522 GC0712    03 BACKGROUND-COLOR COB-COLOR-BLUE
   523              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   524 GC0410       05 LINE 01 COL 01 VALUE ' GCic ('.
   525 GC0410       05         COL 08 PIC X(16) FROM WS-OC-Compile-DT.
   526 GC1213       05         COL 24 VALUE ') GNUCOBOL 2.2 20JUL2017 ' &
   527 GC0410                          'Interactive Compilation        '.
   528 VC0617    03 BACKGROUND-COLOR COB-COLOR-RED
   529 GC0712       FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   530 GC0712       05 LINE 24 COL 01 PIC X(80) FROM WS-Output-Msg-TXT.
   531      *>
   532      *> LABELS
   533      *>
   534          03 BACKGROUND-COLOR COB-COLOR-BLACK
   535              FOREGROUND-COLOR COB-COLOR-CYAN  HIGHLIGHT.
   536 GC0712       05 LINE 06 COL 02 VALUE 'Set/Clr Switches Via F1-F9; ' &
   537 GC0712                          'Set Config Via F12; Enter Key ' &
   538 GC0712                          'Compiles; Esc Quits'.
   539 GC0712       05 LINE 14 COL 02 VALUE 'Extra "cobc" Switches, If Any ' &
   540 GC0712                          '("-save-temps=xxx" Prevents ' &
   541 GC0712                          'Listings):'.
   542 GC0712       05 LINE 19 COL 02 VALUE 'Program Execution Arguments, ' &
   543 GC0712                          'If Any:'.
   544 GC0712    03 BACKGROUND-COLOR COB-COLOR-BLACK
   545 GC0712       FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   546 GC0712       05 LINE 06 COL 23 VALUE 'F1'.
   547 GC0712       05         COL 26 VALUE 'F9'.
   548 GC0712       05         COL 45 VALUE 'F12'.
   549 GC0712       05         COL 50 VALUE 'ENTER'.
   550 GC0712       05         COL 70 VALUE 'ESC'.
   551      *>
   552      *> TOP SECTION BACKGROUND
   553      *>
   554          03 BACKGROUND-COLOR COB-COLOR-BLACK
   555              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   556 GC0712       05 LINE 03 COL 62 VALUE 'Enter'.
   557 GC0712       05 LINE 04 COL 62 VALUE 'Esc'.
   558
   559          03 BACKGROUND-COLOR COB-COLOR-BLACK
   560              FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   561 GC0712       05 LINE 04 COL 03 VALUE 'Folder:  '.
   562 GC0712       05 LINE 03 COL 03 VALUE 'Filename: '.
   563
   564 GC0712       05 LINE 03 COL 67 VALUE ': Compile  '.

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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                        2017/07/22
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 15
====== =========================================================================================
   565 GC0712        05 LINE 04 COL 65 VALUE ':   Quit       '.
   566       *>
   567       *> TOP SECTION PROGRAM INFO
   568       *>
   569           03 BACKGROUND-COLOR COB-COLOR-BLACK
   570              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   571 GC0712        05 LINE 03 COL 13 PIC X(66) FROM WS-Prog-File-Name-TXT.
   572 GC0712        05 LINE 04 COL 13 PIC X(66) FROM WS-Prog-Folder-TXT.
   573       *>
   574       *> MIDDLE LEFT SECTION F-KEYS
   575       *>
   576           03 BACKGROUND-COLOR COB-COLOR-BLACK
   577              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   578 GC0712        05 LINE 08 COL 03 VALUE 'F1'.
   579 GC0712        05 LINE 09 COL 03 VALUE 'F2'.
   580 GC0712        05 LINE 10 COL 03 VALUE 'F3'.
   581 GC0712        05 LINE 11 COL 03 VALUE 'F4'.
   582 GC0712        05 LINE 12 COL 03 VALUE 'F5'.
   583
   584 GC0712        05 LINE 08 COL 35 VALUE 'F6'.
   585 GC0712        05 LINE 09 COL 35 VALUE 'F7'.
   586 GC0712        05 LINE 10 COL 35 VALUE 'F8'.
   587 GC0712        05 LINE 11 COL 35 VALUE 'F9'.
   588       *>
   589       *> MIDDLE LEFT SECTION SWITCHES
   590       *>
   591           03 BACKGROUND-COLOR COB-COLOR-BLACK
   592              FOREGROUND-COLOR COB-COLOR-RED   HIGHLIGHT.
   593 GC0712        05 LINE 08 COL 06 PIC X(1) FROM WS-CS-DEBUG-CHR.
   594 GC0712        05 LINE 09 COL 06 PIC X(1) FROM WS-CS-TRACEALL-CHR.
   595 GC0712        05 LINE 10 COL 06 PIC X(1) FROM WS-CS-LIBRARY-CHR.
   596 GC0712        05 LINE 11 COL 06 PIC X(1) FROM WS-CS-EXECUTE-CHR.
   597 GC0712        05 LINE 12 COL 06 PIC X(1) FROM WS-CS-LISTING-CHR.
   598
   599 GC0712        05 LINE 08 COL 38 PIC X(1) FROM WS-CS-NOFUNC-CHR.
   600 GC0712        05 LINE 09 COL 38 PIC X(1) FROM WS-CS-WARNALL-CHR.
   601 GC0712        05 LINE 10 COL 38 PIC X(1) FROM WS-CS-FREE-CHR.
   602 GC0712        05 LINE 11 COL 38 PIC X(1) FROM WS-CS-NOTRUNC-CHR.
   603       *>
   604       *> MIDDLE LEFT SECTION BACKGROUND
   605       *>
   606           03 BACKGROUND-COLOR COB-COLOR-BLACK
   607              FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   608 GC0712        05 LINE 08 COL 07 VALUE 'Assume WITH DEBUGGING MODE'.
   609 GC0712        05 LINE 09 COL 07 VALUE 'Procedure+Statement Trace '.
   610 GC0712        05 LINE 10 COL 07 VALUE 'Make a Library ('.
   611 GC0712        05         COL 23 VALUE WS-OS-Lib-Type-CONST.
   612 GC0712        05 LINE 11 COL 07 VALUE 'Execute If Compilation OK '.
   613 GC1213        05 LINE 12 COL 07 FROM  WS-Listing-TXT.
   614
   615 GC0712        05 LINE 08 COL 39 VALUE '"FUNCTION" Is Optional    '.
   616 GC0712        05 LINE 09 COL 39 VALUE 'Enable All Warnings       '.
   617 GC0712        05 LINE 10 COL 39 VALUE 'Source Is Free-Format     '.

====================================================================================================
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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                   2017/07/22
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 16
====== =============================================================================
   618 GC0712       05 LINE 11 COL 39 VALUE 'No COMP/BINARY Truncation '.
   619       *>
   620       *> MIDDLE RIGHT SECTION Text
   621       *>
   622          03 BACKGROUND-COLOR COB-COLOR-BLACK
   623             FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   624 GC0712       05 LINE 08 COL 69 VALUE 'Current'.
   625 GC0712       05 LINE 09 COL 69 VALUE 'Config:'.
   626       *>
   627       *> MIDDLE RIGHT SECTION CONFIG FILE
   628       *>
   629          03 BACKGROUND-COLOR COB-COLOR-BLACK
   630             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   631 GC0712       05 LINE 10 COL 69 PIC X(10)
   632 GC0712          FROM WS-CS-Filename-TXT (WS-CS-Config-NUM).
   633       *>
   634       *> FREE-FORM OPTIONS FIELDS
   635       *>
   636          03 BACKGROUND-COLOR COB-COLOR-BLACK
   637             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   638 GC0712       05 LINE 16 COL 03 PIC X(76) USING WS-CS-Extra-H1-TXT.
   639 GC0712       05 LINE 17 COL 03 PIC X(76) USING WS-CS-Extra-H2-TXT.
   640 GC0712       05 LINE 21 COL 03 PIC X(76) USING WS-CS-Arg-H1-TXT.
   641 GC0712       05 LINE 22 COL 03 PIC X(76) USING WS-CS-Arg-H2-TXT.
```

```
====================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL              Page: 16
```

```
   643        PROCEDURE DIVISION.
   644        *>**********************************************************
   645        *> Legend to procedure names:                           **
   646        *>                                                       **
   647        *> 00x-xxx   All MAIN driver procedures                 **
   648        *> 0xx-xxx   All GLOBAL UTILITY procedures              **
   649        *> 1xx-xxx   All INITIALIZATION procedures              **
   650        *> 2xx-xxx   All CORE PROCESSING procedures             **
   651        *> 9xx-xxx   All TERMINATION procedures                 **
   652        *>**********************************************************
   653        DECLARATIVES.
   654        000-File-Error SECTION.
   655            USE AFTER STANDARD ERROR PROCEDURE ON F-Source-Code-FILE.
   656            COPY FileStat-Msgs
   657                REPLACING STATUS BY WS-FSM-Status-CD
   658                          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.
   659            MOVE SPACES TO WS-Output-Msg-TXT
   660            IF WS-FSM-Status-CD = 35
   661                DISPLAY
   662                    'File not found: "'
```

```
====== =========================================================================================
   663                    TRIM(WS-File-Name-TXT,TRAILING)
   664                    '"'
   665            ELSE
   666                DISPLAY
   667                    'Error accessing file: "'
   668                    TRIM(WS-File-Name-TXT,TRAILING)
   669                    '"'
   670            END-IF
   671            GOBACK
   672                .
   673        END DECLARATIVES.
   674
   675        000-Main SECTION.
   676            PERFORM 100-Initialization
   677 GC0609    SET WS-RS-Not-Complete-BOOL TO TRUE
   678 GC0609    PERFORM UNTIL WS-RS-Complete-BOOL
   679 GC0609        PERFORM 200-Let-User-Set-Switches
   680 GC0609        PERFORM 210-Run-Compiler
   681 GC0410        IF (WS-RS-Compile-OK-BOOL OR WS-RS-Compile-OK-Warn-BOOL)
   682 GC0712        AND (WS-CS-LISTING-CHR > SPACE)
   683 GC0712            DISPLAY S-Blank-SCR
   684 GC0410            PERFORM 220-Make-Listing
   685 GC0410        END-IF
   686 GC0709        IF  (WS-CS-EXECUTE-CHR NOT = SPACES)
   687 GC0709        AND (WS-RS-Output-File-Avail-BOOL)
   688 GC0609            PERFORM 230-Run-Program
   689 GC0609        END-IF
   690 GC0712        PERFORM 250-Autoload-Listing
   691 GC0609    END-PERFORM
   692            PERFORM 900-Terminate
   693      * -- Control will NOT return
   694              .
```

```
  696          *>****************************************************************
  697          *> Perform all program-wide initialization operations        **
  698          *>****************************************************************
  699           100-Initialization SECTION.
  700          *>****************************************************************
  701          *> Make sure full screen-handling is in effect               **
  702          *>****************************************************************
  703              SET ENVIRONMENT 'COB_SCREEN_EXCEPTIONS' TO 'Y'
  704              SET ENVIRONMENT 'COB_SCREEN_ESC'        TO 'Y'
  705 VC0617     SET ENVIRONMENT "COB_EXIT_WAIT"          TO "0".
  706          *>****************************************************************
  707          *> Get GCic Compilation Date/Time                            **
  708          *>****************************************************************
  709              MOVE WHEN-COMPILED (1:12) TO WS-OC-Compile-DT
  710              INSPECT WS-OC-Compile-DT
  711                  REPLACING ALL '/' BY ':'
  712                  AFTER INITIAL SPACE
  713          *>****************************************************************
  714          *> Convert WS-CS-All-Switches-TXT to Needed Alphanumeric Values**
  715          *>****************************************************************
  716              INSPECT WS-CS-All-Switches-TXT
  717                  REPLACING ALL '0' BY SPACE
  718                            ALL '1' BY SELCHAR
  719 GC1213                    ALL '2' BY SELCHAR
  720          *>****************************************************************
  721          *> Process filename (the only command-line argument)         **
  722          *>****************************************************************
  723 GC0712     ACCEPT WS-Cmd-Args-TXT FROM COMMAND-LINE
  724 GC0712     MOVE 1 TO WS-Cmd-SUB
  725 GC0712     IF WS-Cmd-Args-TXT(WS-Cmd-SUB:1) = '"' OR "'"
  726 GC0712         MOVE WS-Cmd-Args-TXT(WS-Cmd-SUB:1)
  727 GC0712           TO WS-Cmd-End-Quote-CHR
  728 GC0712         ADD 1 TO WS-Cmd-SUB
  729 GC0712         UNSTRING WS-Cmd-Args-TXT
  730 GC0712             DELIMITED BY WS-Cmd-End-Quote-CHR
  731 GC0712             INTO WS-File-Name-TXT
  732 GC0712             WITH POINTER WS-Cmd-SUB
  733 GC0712     ELSE
  734 GC0712         UNSTRING WS-Cmd-Args-TXT
  735 GC0712             DELIMITED BY ALL SPACES
  736 GC0712             INTO WS-File-Name-TXT
  737 GC0712             WITH POINTER WS-Cmd-SUB
  738 GC0712     END-IF
  739          IF WS-File-Name-TXT = SPACES
  740 GC0712         DISPLAY 'No program filename was specified'
  741              PERFORM 900-Terminate
  742      * ------ Control will NOT return
  743          END-IF
  744          *>****************************************************************
  745          *> Determine if 'Make A Library' feature should be forced 'ON' **
  746          *>****************************************************************
  747              PERFORM 240-Find-LINKAGE-SECTION
```

Line   Statement   Page: 20
====== ===
```
    748         *>****************************************************************
    749         *> Split 'WS-File-Name-TXT' into 'WS-Prog-Folder-TXT' and      **
    750         *> 'WS-Prog-File-Name-TXT'                                      **
    751         *>****************************************************************
    752 GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
    753 GC0712         MOVE '\' TO WS-OS-Dir-CHR
    754 GC0909     END-IF
    755 GC0712     MOVE LENGTH(WS-File-Name-TXT) TO WS-I-SUB
    756 GC0712     PERFORM UNTIL WS-I-SUB = 0
    757 GC0712     OR WS-FN-CHR (WS-I-SUB) = WS-OS-Dir-CHR
    758             SUBTRACT 1 FROM WS-I-SUB
    759         END-PERFORM
    760         IF WS-I-SUB = 0
    761             MOVE SPACES     TO WS-Prog-Folder-TXT
    762             MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
    763         ELSE
    764             MOVE '*' TO WS-FN-CHR (WS-I-SUB)
    765             UNSTRING WS-File-Name-TXT DELIMITED BY '*'
    766                 INTO WS-Prog-Folder-TXT
    767                      WS-Prog-File-Name-TXT
    768 GC0712         MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
    769         END-IF
    770         IF WS-Prog-Folder-TXT = SPACES
    771             ACCEPT WS-Prog-Folder-TXT FROM ENVIRONMENT 'CD'
    772 GC0909     ELSE
    773 GC0909         CALL 'CBL_CHANGE_DIR'
    774 GC0909             USING TRIM(WS-Prog-Folder-TXT,TRAILING)
    775         END-IF
    776 GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
    777 GC0712         MOVE '/' TO WS-OS-Dir-CHR
    778 GC0909     END-IF
    779         *>****************************************************************
    780         *> Split 'WS-Prog-File-Name-TXT' into 'WS-Pgm-Nm-TXT' &         **
    781         *> 'WS-Prog-Extension-TXT'                                      **
    782         *>****************************************************************
    783 GC0712     MOVE LENGTH(WS-Prog-File-Name-TXT) TO WS-I-SUB
    784 GC0712     PERFORM UNTIL WS-I-SUB = 0
    785 GC0712     OR WS-PFN-CHR (WS-I-SUB) = '.'
    786 GC0712         SUBTRACT 1 FROM WS-I-SUB
    787 GC0712     END-PERFORM
    788 GC0712     IF WS-I-SUB = 0
    789 GC0712         MOVE WS-Prog-File-Name-TXT TO WS-Pgm-Nm-TXT
    790 GC0712         MOVE SPACES         TO WS-Prog-Extension-TXT
    791 GC0712     ELSE
    792 GC0712         MOVE '*' TO WS-PFN-CHR (WS-I-SUB)
    793 GC0712         UNSTRING WS-Prog-File-Name-TXT DELIMITED BY '*'
    794 GC0712             INTO WS-Pgm-Nm-TXT
    795 GC0712                  WS-Prog-Extension-TXT
    796 GC0712         MOVE '.' TO WS-PFN-CHR (WS-I-SUB)
    797 GC0712     END-IF
    798         *>****************************************************************
    799         *> Build initial Line 24 Message                               **
    800         *>****************************************************************
```

==

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 21
====== ===============================================================================
   801 GC0909     MOVE ALL LD-Horiz-Line TO WS-Horizontal-Line-TXT.
   802 GC0410     MOVE CONCATENATE(' GCic for '
   803 GC0410                      TRIM(WS-OS-Type-TXT(WS-OS-Type-CD),Trailing)
   804 GC1213                      ' Copyright (C) 2009-2017, Gary L. '
   805 GC0410                      'Cutler, GPL')
   806 GC0410        TO WS-Output-Msg-TXT.
   807 GC0909
```

```
====================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL              Page: 21
```

====== ===

```
   809          *>*************************************************************
   810          *> Show the user the current switch settings and allow them to **
   811          *> be changed.                                               **
   812          *>*************************************************************
   813           200-Let-User-Set-Switches SECTION.
   814              SET WS-RS-Switch-Changes-BOOL TO TRUE
   815              PERFORM UNTIL WS-RS-No-Switch-Changes-BOOL
   816 GC1213         EVALUATE WS-Listing-CD
   817 GC1213         WHEN 0
   818 GC1213             MOVE 'Listing Off'          TO WS-Listing-TXT
   819 GC1213             MOVE SPACE                  TO WS-CS-LISTING-CHR
   820 GC1213         WHEN 1
   821 GC1213             MOVE 'Listing On (Landscape)' TO WS-Listing-TXT
   822 GC1213             MOVE SELCHAR                TO WS-CS-LISTING-CHR
   823 GC1213         WHEN 2
   824 GC1213             MOVE 'Listing On (Portrait)' TO WS-Listing-TXT
   825 GC1213             MOVE SELCHAR                TO WS-CS-LISTING-CHR
   826 GC1213         END-EVALUATE
   827              ACCEPT S-Switches-SCR
   828              IF COB-CRT-STATUS > 0
   829                  EVALUATE COB-CRT-STATUS
   830                      WHEN COB-SCR-F1
   831                          IF WS-CS-DEBUG-CHR = SPACE
   832 GC0712                       MOVE SELCHAR TO WS-CS-DEBUG-CHR
   833                          ELSE
   834                              MOVE ' ' TO WS-CS-DEBUG-CHR
   835                          END-IF
   836 GC0712                  WHEN COB-SCR-F2
   837 GC0712                      IF  WS-CS-TRACEALL-CHR = SPACE
   838 GC0712                          MOVE SELCHAR TO WS-CS-TRACEALL-CHR
   839 GC0712                      ELSE
   840 GC0712                          MOVE ' ' TO WS-CS-TRACEALL-CHR
   841 GC0712                      END-IF
   842                      WHEN COB-SCR-F3
   843 GC0712                      IF WS-CS-LIBRARY-CHR = SPACE
   844 GC0712                          MOVE SELCHAR TO WS-CS-LIBRARY-CHR
   845                          ELSE
   846 GC0712                          MOVE ' ' TO WS-CS-LIBRARY-CHR
   847                          END-IF
   848                      WHEN COB-SCR-F4
   849                          IF  WS-CS-EXECUTE-CHR = SPACE
   850 GC0712                          MOVE SELCHAR TO WS-CS-EXECUTE-CHR
   851                          ELSE
   852                              MOVE ' ' TO WS-CS-EXECUTE-CHR
   853                          END-IF
   854 GC0712              WHEN COB-SCR-F5
   855 GC1213                  ADD 1 TO WS-Listing-CD
   856 GC1213                  IF WS-Listing-CD > 2
   857 GC1213                      MOVE 0 TO WS-Listing-CD
   858 GC1213                  END-IF
   859 GC0712              WHEN COB-SCR-F6
   860 GC0712                  IF WS-CS-NOFUNC-CHR = SPACE
```

===

====== ==
   861 GC0712   MOVE SELCHAR TO WS-CS-NOFUNC-CHR
   862 GC0712   ELSE
   863 GC0712   MOVE ' ' TO WS-CS-NOFUNC-CHR
   864 GC0712   END-IF
   865 GC0712   WHEN COB-SCR-F7
   866 GC0712   IF WS-CS-WARNALL-CHR = SPACE
   867 GC0712   MOVE SELCHAR TO WS-CS-WARNALL-CHR
   868 GC0712   ELSE
   869 GC0712   MOVE ' ' TO WS-CS-WARNALL-CHR
   870 GC0712   END-IF
   871 GC0712   WHEN COB-SCR-F8
   872 GC0712   IF WS-CS-FREE-CHR = SPACE
   873 GC0712   MOVE SELCHAR TO WS-CS-FREE-CHR
   874 GC0712   ELSE
   875 GC0712   MOVE ' ' TO WS-CS-FREE-CHR
   876 GC0712   END-IF
   877 GC0712   WHEN COB-SCR-F9
   878 GC0712   IF WS-CS-NOTRUNC-CHR = SPACE
   879 GC0712   MOVE SELCHAR TO WS-CS-NOTRUNC-CHR
   880 GC0712   ELSE
   881 GC0712   MOVE ' ' TO WS-CS-NOTRUNC-CHR
   882 GC0712   END-IF
   883   WHEN COB-SCR-ESC
   884   PERFORM 900-Terminate
   885   * ------------------ Control will NOT return
   886 GC0712   WHEN COB-SCR-F12
   887 GC0712   ADD 1 TO WS-CS-Config-NUM
   888 GC0712   IF WS-CS-Config-NUM > 7
   889 GC0712   MOVE 1 TO WS-CS-Config-NUM
   890 GC0712   END-IF
   891   WHEN OTHER
   892   MOVE 'An unsupported key was pressed'
   893   TO WS-Output-Msg-TXT
   894   END-EVALUATE
   895   ELSE
   896   SET WS-RS-No-Switch-Changes-BOOL TO TRUE
   897   END-IF
   898   END-PERFORM
   899   .

====== ===

```
   901          *>**************************************************************
   902          *> Run the compiler using the switch settings we've prepared.  **
   903          *>**************************************************************
   904           210-Run-Compiler SECTION.
   905              MOVE SPACES TO WS-Cmd-TXT
   906                            WS-Cobc-Cmd-TXT
   907                            WS-Output-Msg-TXT
   908              DISPLAY S-Switches-SCR
   909              MOVE 1 TO WS-I-SUB
   910 GC0712      MOVE LOWER-CASE(WS-CS-Filename-TXT (WS-CS-Config-NUM))
   911 GC0712        TO WS-Config-Fn-TXT
   912          *>**************************************************************
   913          *> Build the 'cobc' command                                   **
   914          *>**************************************************************
   915 GC0909      MOVE SPACES TO WS-Cobc-Cmd-TXT
   916 GC0909      STRING 'cobc -v -std='
   917 GC0909         TRIM(WS-Config-Fn-TXT,TRAILING)
   918 GC0909         ' '
   919 GC0909         INTO WS-Cobc-Cmd-TXT
   920 GC0909         WITH POINTER WS-I-SUB
   921              IF WS-CS-LIBRARY-CHR NOT = ' '
   922                  STRING '-m '
   923                      DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   924                      WITH POINTER WS-I-SUB
   925              ELSE
   926                  STRING '-x '
   927                      DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   928                      WITH POINTER WS-I-SUB
   929              END-IF
   930              IF WS-CS-DEBUG-CHR NOT = ' '
   931                  STRING '-fdebugging-line '
   932                      DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   933                      WITH POINTER WS-I-SUB
   934              END-IF
   935              IF WS-CS-NOTRUNC-CHR NOT = ' '
   936                  STRING '-fnotrunc '
   937                      DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   938                      WITH POINTER WS-I-SUB
   939              END-IF
   940              IF WS-CS-TRACEALL-CHR NOT = ' '
   941 GC0809          STRING '-ftraceall '
   942                      DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   943                      WITH POINTER WS-I-SUB
   944              END-IF
   945 GC0712      IF WS-CS-NOFUNC-CHR NOT = ' '
   946 VC0717          STRING '-fintrinsics=ALL '
   947 GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   948 GC0712              WITH POINTER WS-I-SUB
   949 GC0712      END-IF
   950 GC0712      IF WS-CS-WARNALL-CHR NOT = ' '
   951 GC0712          STRING '-Wall '
   952 GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
```

==

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                      2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 25
====== =====================================================================================
   953 GC0712           WITH POINTER WS-I-SUB
   954 GC0712      END-IF
   955 GC0712      IF WS-CS-FREE-CHR NOT = ' '
   956 GC0712         STRING '-free '
   957 GC0712             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   958 GC0712             WITH POINTER WS-I-SUB
   959 GC0712      ELSE
   960 GC0712         STRING '-fixed '
   961 GC0712             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   962 GC0712             WITH POINTER WS-I-SUB
   963 GC0712      END-IF
   964
   965 GC0712      MOVE 0 TO WS-Tally-QTY
   966 GC0712      INSPECT WS-CS-Extra-TXT
   967 GC0712         TALLYING WS-Tally-QTY FOR ALL '-save-temps'
   968 GC0712      IF WS-CS-LISTING-CHR > SPACE
   969 GC0712      AND WS-Tally-QTY > 0
   970 GC0712         MOVE SPACE TO WS-CS-LISTING-CHR *> Can't generate listing if -save-temps u
       sed
   971 GC0712      END-IF
   972 GC0712      IF WS-CS-LISTING-CHR > SPACE
   973 GC1010         STRING '-save-temps '
   974 GC1010             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   975 GC1010             WITH POINTER WS-I-SUB
   976 GC1010      END-IF
   977
   978 GC0709      IF WS-CS-Extra-TXT > SPACES
   979 GC0709         STRING ' '
   980 GC0709                TRIM(WS-CS-Extra-TXT,TRAILING)
   981 GC0709                ' '
   982 GC0709                DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   983 GC0709                WITH POINTER WS-I-SUB
   984 GC0709      END-IF
   985 GC0909      STRING TRIM(WS-Prog-File-Name-TXT,TRAILING)
   986 GC0909         DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   987 GC0909         WITH POINTER WS-I-SUB
   988         *>************************************************************
   989         *> Prepare the compilation listing file                    **
   990         *>************************************************************
   991 GC1113      MOVE CONCATENATE(TRIM(WS-Pgm-Nm-TXT,Trailing),'.gclst')
   992 GC0712       TO WS-Listing-Filename-TXT
   993 GC0712      CALL 'CBL_DELETE_FILE' USING WS-Listing-Filename-TXT
   994         *>************************************************************
   995         *> Now execute the 'cobc' command                          **
   996         *>************************************************************
   997 GC0410      MOVE ' Compiling...' TO WS-Output-Msg-TXT
   998 GC0410      DISPLAY S-Switches-SCR
   999 GC0609      SET WS-RS-Output-File-Avail-BOOL TO TRUE
  1000            MOVE SPACES TO WS-Cmd-TXT
  1001            STRING TRIM(WS-Cobc-Cmd-TXT,TRAILING)
  1002 GC0712            ' >' WS-Listing-Filename-TXT
  1003 GC0712            ' 2>&1'
  1004                   DELIMITED SIZE

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

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                   2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 26
====== ==========================================================================================
  1005               INTO WS-Cmd-TXT
  1006 DEBUG D    DISPLAY WS-Cmd-TXT UPON SYSERR
  1007            CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
  1008 GC0712     OPEN EXTEND F-Cobc-Output-FILE
  1009 GC0712     WRITE F-Cobc-Output-REC FROM SPACES
  1010 GC0712     IF RETURN-CODE = 0
  1011 GC0712        SET WS-RS-Compile-OK-BOOL TO TRUE
  1012 GC0712        MOVE ' Compilation Was Successful' TO WS-Output-Msg-TXT
  1013 GC0712        MOVE CONCATENATE('GNU COBOL',WS-Output-Msg-TXT)
  1014 GC0712          TO F-Cobc-Output-REC
  1015 GC0712        WRITE F-Cobc-Output-REC
  1016 GC0712        SET WS-RS-Complete-BOOL TO TRUE
  1017 GC0712     ELSE
  1018 GC0712        SET WS-RS-Compile-Failed-BOOL TO TRUE
  1019 GC0712        MOVE CONCATENATE(' Compilation Failed - See ',
  1020 GC0712                    TRIM(WS-Listing-Filename-TXT,Trailing))
  1021 GC0712          TO WS-Output-Msg-TXT
  1022 GC0712        MOVE 'GNU COBOL Compilation HAS FAILED - See Above'
  1023 GC0712          TO F-Cobc-Output-REC
  1024 GC0712        WRITE F-Cobc-Output-REC
  1025 GC0712     END-IF
  1026 GC0712     CLOSE F-Cobc-Output-FILE
  1027 GC0712     DISPLAY S-Switches-SCR
  1028 GC0712     CALL 'C$SLEEP' USING 2
  1029 GC0712     MOVE SPACES TO WS-Output-Msg-TXT
  1030            IF WS-RS-Compile-Failed-BOOL
  1031 GC0712        PERFORM 250-Autoload-Listing
  1032            PERFORM 900-Terminate
  1033     *> ----- Control will not return
  1034            END-IF
  1035            .
```

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```
  1037          *>****************************************************************
  1038          *> Generate a source + xref listing using 'LISTING' subroutine **
  1039          *>****************************************************************
  1040 GC0410 220-Make-Listing SECTION.
  1041 GC0410     MOVE ' Generating listing...' TO WS-Output-Msg-TXT
  1042 GC0410     DISPLAY S-Switches-SCR
  1043 GC0410     MOVE 0 TO RETURN-CODE
  1044          *>****************************************************************
  1045          *> Create the listing                                          **
  1046          *>****************************************************************
  1047 GC0410     MOVE SPACES TO WS-Output-Msg-TXT
  1048 GC0410     CALL 'LISTING' USING WS-Listing-Filename-TXT
  1049 GC0712                          WS-File-Name-TXT
  1050 GC0712                          WS-OS-Type-CD
  1051 GC1213                          LPP
  1052 GC1213                          LPPP
  1053 GC1213                          WS-Listing-CD
  1054 GC0410     ON EXCEPTION
  1055 GC0410        MOVE ' LISTING module is not available'
  1056 GC0410          TO WS-Output-Msg-TXT
  1057 GC0410        MOVE 1 TO RETURN-CODE
  1058 GC0410     END-CALL
  1059 GC0410     IF RETURN-CODE = 0
  1060 GC0712        MOVE ' Source+Xref listing generated '
  1061 GC0712          TO WS-Output-Msg-TXT
  1062 GC0410     END-IF
  1063 GC0712     DISPLAY S-Switches-SCR
  1064 GC0712     CALL 'C$SLEEP' USING 2
  1065 GC0712     PERFORM 250-Autoload-Listing
  1066 GC0410     .
```

====== ===

```
  1068          *>**************************************************************
  1069          *> Run the compiled program                                 **
  1070          *>**************************************************************
  1071          230-Run-Program SECTION.
  1072 GC0114     MOVE ' Preparing to run program ... press ENTER to close '
  1073 GC0114       TO WS-Output-Msg-TXT
  1074 GC0114     DISPLAY S-Switches-SCR
  1075 GC0114     CALL 'C$SLEEP' USING 3
  1076 GC0909     MOVE SPACES TO WS-Cmd-TXT
  1077 GC0909     MOVE 1 TO WS-I-SUB
  1078          *>**************************************************************
  1079          *> If necessary, start with 'cobcrun' command               **
  1080          *>**************************************************************
  1081 GC0712     IF WS-CS-LIBRARY-CHR NOT = ' '
  1082                  STRING 'cobcrun ' DELIMITED SIZE
  1083                       INTO WS-Cmd-TXT
  1084                       WITH POINTER WS-I-SUB
  1085            END-IF
  1086          *>**************************************************************
  1087          *> Add any necessary path prefix                            **
  1088          *>**************************************************************
  1089 GC0712     SET WS-RS-Double-Quote-Used-BOOL TO FALSE
  1090            IF WS-Prog-Folder-TXT NOT = SPACES
  1091 GC0909       IF WS-OS-Cygwin-BOOL AND WS-Prog-Folder-TXT (2:1) = ':'
  1092 GC0909          STRING '/cygdrive/'
  1093 GC0909             INTO WS-Cmd-TXT
  1094 GC0909             WITH POINTER WS-I-SUB
  1095 GC0909          STRING LOWER-CASE(WS-Prog-Folder-TXT (1:1))
  1096 GC0909             INTO WS-Cmd-TXT
  1097 GC0909             WITH POINTER WS-I-SUB
  1098 GC0909          PERFORM
  1099 GC0909             VARYING WS-J-SUB FROM 3 BY 1
  1100 GC0909             UNTIL WS-J-SUB > LENGTH(TRIM(WS-Prog-Folder-TXT))
  1101 GC0909             IF WS-Prog-Folder-TXT (WS-J-SUB:1) = '\'
  1102 GC0909                STRING '/'
  1103 GC0909                   INTO WS-Cmd-TXT
  1104 GC0909                   WITH POINTER WS-I-SUB
  1105 GC0909             ELSE
  1106 GC0909                STRING WS-Prog-Folder-TXT (WS-J-SUB:1)
  1107 GC0909                   INTO WS-Cmd-TXT
  1108 GC0909                   WITH POINTER WS-I-SUB
  1109 GC0909             END-IF
  1110 GC0909          END-PERFORM
  1111 GC0909       ELSE
  1112 GC0410          STRING '"' TRIM(WS-Prog-Folder-TXT,TRAILING)
  1113 GC0909             INTO WS-Cmd-TXT
  1114 GC0909             WITH POINTER WS-I-SUB
  1115 GC0712          SET WS-RS-Double-Quote-Used-BOOL TO TRUE
  1116 GC0909       END-IF
  1117 GC0712       STRING WS-OS-Dir-CHR
  1118 GC0909          INTO WS-Cmd-TXT
  1119 GC0909          WITH POINTER WS-I-SUB
```

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====== ===
```
 1120 GC0909      ELSE
 1121 GC0909          IF WS-OS-Cygwin-BOOL OR WS-OS-UNIX-BOOL
 1122 GC0909              STRING './'
 1123 GC0909                  INTO WS-Cmd-TXT
 1124 GC0909                  WITH POINTER WS-I-SUB
 1125 GC0909          END-IF
 1126              END-IF
 1127      *>**************************************************************
 1128      *> Insert program filename                                 **
 1129      *>**************************************************************
 1130 GC0909      STRING TRIM(WS-Pgm-Nm-TXT,TRAILING)
 1131 GC0909          INTO WS-Cmd-TXT
 1132 GC0909          WITH POINTER WS-I-SUB
 1133      *>**************************************************************
 1134      *> Insert proper extension                                 **
 1135      *>**************************************************************
 1136 GC0712      IF WS-CS-LIBRARY-CHR = ' '
 1137 GC0712          IF WS-OS-Exe-Ext-CONST > ' '
 1138 GC0712              STRING WS-OS-Exe-Ext-CONST DELIMITED SPACE
 1139 GC0712                  INTO WS-Cmd-TXT
 1140 GC0712                  WITH POINTER WS-I-SUB
 1141 GC0712          END-IF
 1142 GC0712      ELSE
 1143 GC0712          IF WS-OS-Lib-Ext-CONST > ' '
 1144 GC0712              STRING WS-OS-Lib-Ext-CONST DELIMITED SPACE
 1145 GC0712                  INTO WS-Cmd-TXT
 1146 GC0712                  WITH POINTER WS-I-SUB
 1147 GC0712          END-IF
 1148 GC0712      END-IF
 1149 GC0712      IF WS-RS-Double-Quote-Used-BOOL
 1150 GC0712          STRING '"' DELIMITED SIZE
 1151 GC0712              INTO WS-Cmd-TXT
 1152 GC0712              WITH POINTER WS-I-SUB
 1153 GC0712      END-IF
 1154          IF WS-CS-Args-TXT NOT = SPACES
 1155 GC0809          STRING ' ' TRIM(WS-CS-Args-TXT,TRAILING)
 1156                  INTO WS-Cmd-TXT
 1157                  WITH POINTER WS-I-SUB
 1158          END-IF
 1159      *>**************************************************************
 1160      *> Run the program                                         **
 1161      *>**************************************************************
 1162 GC0114      CALL X'E4'
 1163          CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1164 GC0712      MOVE SPACES TO WS-Output-Msg-TXT
 1165 GC0114      ACCEPT WS-Output-Msg-TXT(1:1) AT 0101
 1166          PERFORM 900-Terminate
 1167      * -- Control will NOT return
 1168              .
```

==

====== ==

```
  1170          *>**************************************************************
  1171          *> Determine if the program being compiled is a MAIN program   **
  1172          *>**************************************************************
  1173           240-Find-LINKAGE-SECTION SECTION.
  1174              OPEN INPUT F-Source-Code-FILE
  1175 GC0712     MOVE ' ' TO WS-CS-LIBRARY-CHR
  1176              SET WS-RS-More-To-1st-Prog-BOOL    TO TRUE
  1177              PERFORM UNTIL WS-RS-1st-Prog-Complete-BOOL
  1178                  READ F-Source-Code-FILE AT END
  1179                      CLOSE F-Source-Code-FILE
  1180                      EXIT SECTION
  1181                  END-READ
  1182 GC0712         CALL 'CHECKSRC'
  1183 GC0712             USING BY CONTENT   F-Source-Code-REC
  1184 GC0712                   BY REFERENCE WS-RS-Source-Record-Type-CHR
  1185              IF WS-RS-Source-Rec-Ident-BOOL
  1186                  SET WS-RS-1st-Prog-Complete-BOOL TO TRUE
  1187              END-IF
  1188          END-PERFORM
  1189 GC0712     SET WS-RS-Source-Rec-Ignored-BOOL TO TRUE
  1190              PERFORM UNTIL WS-RS-Source-Rec-Linkage-BOOL
  1191                     OR WS-RS-Source-Rec-Ident-BOOL
  1192                  READ F-Source-Code-FILE AT END
  1193                      CLOSE F-Source-Code-FILE
  1194                      EXIT SECTION
  1195                  END-READ
  1196 GC0712         CALL 'CHECKSRC'
  1197 GC0712             USING BY CONTENT   F-Source-Code-REC
  1198 GC0712                   BY REFERENCE WS-RS-Source-Record-Type-CHR
  1199          END-PERFORM
  1200          CLOSE F-Source-Code-FILE
  1201          IF WS-RS-Source-Rec-Linkage-BOOL
  1202 GC0712         MOVE SELCHAR TO WS-CS-LIBRARY-CHR
  1203          END-IF
  1204              .
```

===

```
 1206 GC0712*>*****************************************************************
 1207 GC0712*> Attempt to open the listing file as a command.  This will - **
 1208 GC1113*> if the user has associated filetype/extension 'gclst' with  **
 1209 GC0712*> an application - invoke the appropriate application to       **
 1210 GC0712*> allow the user to view the listing.                          **
 1211 GC0712*>****************************************************************'
 1212 GC0712 250-Autoload-Listing SECTION.
 1213 GC0712      EVALUATE TRUE
 1214 GC0712          WHEN WS-OS-Windows-BOOL OR WS-OS-Cygwin-BOOL
 1215 GC0712              MOVE SPACES TO WS-Cmd-TXT
 1216 GC0712              STRING
 1217 GC0712                  'cmd /c '
 1218 GC0712                  TRIM(WS-Listing-Filename-TXT,TRAILING)
 1219 GC0712                  DELIMITED SIZE INTO WS-Cmd-TXT
 1220 GC0712              CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1221 GC0712          WHEN WS-OS-OSX-BOOL
 1222 GC0712              MOVE SPACES TO WS-Cmd-TXT
 1223 GC0712              STRING
 1224 GC0712                  'open -t '
 1225 GC0712                  TRIM(WS-Listing-Filename-TXT,TRAILING)
 1226 GC0712                  DELIMITED SIZE INTO WS-Cmd-TXT
 1227 GC0712              CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1228 GC0712      END-EVALUATE
 1229 GC0712*>    ************************************************************
 1230 GC0712*>    ** Since we had to do our own '-save-temps' when we       **
 1231 GC0712*>    ** compiled (in order to generate the cross-reference     **
 1232 GC0712*>    ** listing) we now need to clean up after ourselves.      **
 1233 GC0712*>    ************************************************************
 1234 GC1112      DISPLAY S-Blank-SCR
 1235 GC0712      IF WS-OS-Windows-BOOL
 1236 GC0712          MOVE CONCATENATE('del ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
 1237 GC0712            TO WS-Cmd-TXT
 1238 GC0712      ELSE
 1239 GC0712          MOVE CONCATENATE('rm ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
 1240 GC0712            TO WS-Cmd-TXT
 1241 GC0712      END-IF
 1242 GC0712      CALL 'SYSTEM'
 1243 GC0712          USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c')
 1244 GC0712      CALL 'SYSTEM'
 1245 GC0712          USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.h')
 1246 GC0712      CALL 'SYSTEM'
 1247 GC0712          USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.l*.h')
 1248 GC0712      CALL 'SYSTEM'
 1249 GC0712          USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.i')
 1250 GC0712      CALL 'SYSTEM'
 1251 GC0712          USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.o')
 1252
 1253 GC0712      .
```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 32
====== =================================================================================

  1255        *>***********************************************************
  1256        *> Display a message and halt the program                 **
  1257        *>***********************************************************
  1258         900-Terminate SECTION.
  1259 GC0909     IF WS-Output-Msg-TXT > SPACES
  1260 GC0909         DISPLAY S-Switches-SCR
  1261 GC0909         CALL 'C$SLEEP' USING 2
  1262 GC0909     END-IF
  1263            DISPLAY S-Blank-SCR
  1264            STOP RUN
  1265            .
  1266
  1267        END PROGRAM GCic.
```

```
====================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL              Page: 32
```

```
   1269       IDENTIFICATION DIVISION.
   1270       PROGRAM-ID.  CHECKSRC.
   1271       *>**************************************************************
   1272       *> This subprogram will scan a line of source code it is given **
   1273       *> looking for 'LINKAGE SECTION' or 'IDENTIFICATION DIVISION'. **
   1274       *>                                                           **
   1275       *>  ****NOTE****   ****NOTE****    ****NOTE****   ****NOTE*** **
   1276       *>                                                           **
   1277       *> These two strings must be found IN THEIR ENTIRETY within   **
   1278       *> the 1st 80 columns of program source records, and cannot   **
   1279       *> follow either a '*>' sequence OR a '*' in col 7.           **
   1280       *>**************************************************************
   1281       *>  DATE   CHANGE DESCRIPTION                                 **
   1282       *> ====== =================================================== **
   1283       *> GC0809 Initial coding.                                     **
   1284       *>**************************************************************
   1285       ENVIRONMENT DIVISION.
   1286       CONFIGURATION SECTION.
   1287       REPOSITORY.
   1288           FUNCTION ALL INTRINSIC.
   1289       DATA DIVISION.
   1290       WORKING-STORAGE SECTION.
   1291       01  WS-Compressed-Src-TXT.
   1292           05 WS-CS-CHR                    OCCURS 80 TIMES
   1293                                           PIC X(1).
   1294
   1295       01  WS-Runtime-Switches-TXT.
   1296           05 WS-RS-Found-SPACE-CHR        PIC X(1).
   1297              88 WS-RS-Skipping-SPACE-BOOL    VALUE 'Y'.
   1298              88 WS-RS-Not-Skipping-SPACE-BOOL VALUE 'N'.
   1299
   1300       01  WS-I-SUB                        USAGE BINARY-CHAR.
   1301
   1302       01  WS-J-SUB                        USAGE BINARY-CHAR.
   1303       LINKAGE SECTION.
   1304       01  L-Argument-1-TXT.
   1305           02 L-A1-CHR                     OCCURS 80 TIMES
   1306                                           PIC X(1).
   1307
   1308       01  L-Argument-2-CHR               PIC X(1).
   1309           88 L-A2-LINKAGE-SECTION-BOOL VALUE 'L'.
   1310           88 L-A2-IDENT-DIVISION-BOOL  VALUE 'I'.
   1311           88 L-A2-Nothing-Special-BOOL VALUE ' '.
```

====== ===

```
 1313 GC0712 PROCEDURE DIVISION USING BY VALUE     L-Argument-1-TXT
 1314 GC0712                          BY REFERENCE L-Argument-2-CHR.
 1315        000-Main SECTION.
 1316            SET L-A2-Nothing-Special-BOOL TO TRUE
 1317            IF L-A1-CHR (7) = '*'
 1318                GOBACK
 1319            END-IF
 1320                .
 1321        *>
 1322        *> Compress multiple consecutive spaces
 1323        *>
 1324            SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
 1325            MOVE 0 TO WS-J-SUB
 1326            MOVE SPACES TO WS-Compressed-Src-TXT
 1327            PERFORM VARYING WS-I-SUB FROM 1 BY 1
 1328                    UNTIL WS-I-SUB > 80
 1329              IF L-A1-CHR (WS-I-SUB) = SPACE
 1330                 IF WS-RS-Not-Skipping-SPACE-BOOL
 1331                    ADD 1 TO WS-J-SUB
 1332                    MOVE UPPER-CASE(L-A1-CHR (WS-I-SUB))
 1333                      TO WS-CS-CHR (WS-J-SUB)
 1334                    SET WS-RS-Skipping-SPACE-BOOL TO TRUE
 1335                 END-IF
 1336              ELSE
 1337                 SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
 1338                 ADD 1 TO WS-J-SUB
 1339                 MOVE L-A1-CHR (WS-I-SUB) TO WS-CS-CHR (WS-J-SUB)
 1340              END-IF
 1341            END-PERFORM
 1342        *>
 1343        *> Scan the compressed source line
 1344        *>
 1345            PERFORM VARYING WS-I-SUB FROM 1 BY 1
 1346                    UNTIL WS-I-SUB > 66
 1347               EVALUATE TRUE
 1348                  WHEN WS-CS-CHR (WS-I-SUB) = '*'
 1349                     IF WS-Compressed-Src-TXT (WS-I-SUB : 2) = '*>'
 1350                        GOBACK
 1351                     END-IF
 1352                  WHEN (WS-CS-CHR (WS-I-SUB) = 'L') AND (WS-I-SUB < 66)
 1353                     IF WS-Compressed-Src-TXT (WS-I-SUB : 15)
 1354                        = 'LINKAGE SECTION'
 1355                        SET L-A2-LINKAGE-SECTION-BOOL TO TRUE
 1356                        GOBACK
 1357                     END-IF
 1358                  WHEN (WS-CS-CHR (WS-I-SUB) = 'I') AND (WS-I-SUB < 58)
 1359                     IF WS-Compressed-Src-TXT (WS-I-SUB : 23)
 1360                        = 'IDENTIFICATION DIVISION'
 1361                        SET L-A2-IDENT-DIVISION-BOOL TO TRUE
 1362                        GOBACK
 1363                     END-IF
 1364               END-EVALUATE
```

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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 35
====== =================================================================================
  1365         END-PERFORM
  1366      *>
  1367      *> If we get to here, we never found anything!
  1368      *>
  1369 +         GOBACK
  1370           .
  1371      END PROGRAM CHECKSRC.
  1372
  1373      IDENTIFICATION DIVISION.
  1374      PROGRAM-ID.  LISTING.
  1375      *>***************************************************************
  1376      *> This subprogram generates a cross-reference listing of an   **
  1377      *> GNU COBOL program.                                          **
  1378      *>***************************************************************
  1379      *>                                                             **
  1380      *> AUTHOR:      GARY L. CUTLER                                 **
  1381      *>              Copyright (C) 2010, Gary L. Cutler, GPL         **
  1382      *>                                                             **
  1383      *> DATE-WRITTEN: April 1, 2010                                 **
  1384      *>                                                             **
  1385      *>***************************************************************
  1386      *>  DATE   CHANGE DESCRIPTION                                  **
  1387      *> ====== =================================================== **
  1388      *> GC0410 Initial coding                                       **
  1389      *> GC0711 Updates to accommodate the 12MAR2010 version of OC   **
  1390      *> GC0710 Handle duplicate data names (i.e. 'CORRESPONDING' or **
  1391      *>        qualified items) better; ignore 'END PROGRAM' recs   **
  1392      *>        so program name doesn't appear in listing.           **
  1393      *> GC0313 Fix problem where the first procedure name defined   **
  1394      *>        in the PROCEDURE DIVISION lacks a "Defined" line      **
  1395      *>        number.                                              **
  1396      *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1; Stop **
  1397      *>        showing functions as if they were identifiers in the **
  1398      *>        xref listing; Flag all CALL argument references with **
  1399      *>        a "C" rather than "*" because they aren't necessari- **
  1400      *>        ly altered; Fixed assorted formatting bugs; DOWN-    **
  1401      *>        WARD COMPATIBLE WITH GNU COBOL 2.0 SYNTAX             **
  1402      *> GC0314 Fix problem where 1st char of 1st token on a line is **
  1403      *>        lost if >>SOURCE MODE IS FREE is in effect and the   **
  1404      *>        1st character is non-blank.                          **
  1405      *>***************************************************************
  1406      ENVIRONMENT DIVISION.
  1407      CONFIGURATION SECTION.
  1408      REPOSITORY.
  1409          FUNCTION ALL INTRINSIC.
  1410      INPUT-OUTPUT SECTION.
  1411      FILE-CONTROL.
  1412          SELECT F-Expanded-Src-FILE  ASSIGN TO WS-Expanded-Src-Fn-TXT
  1413                                      ORGANIZATION IS LINE SEQUENTIAL.
  1414 GC0712     SELECT F-Listing-FILE     ASSIGN TO L-Listing-Fn-TXT
  1415                                      ORGANIZATION IS LINE SEQUENTIAL.
  1416          SELECT F-Original-Src-FILE  ASSIGN TO L-Src-Fn-TXT
  1417                                      ORGANIZATION IS LINE SEQUENTIAL.
====================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL          Page: 35
```

====== ==
```
 1418            SELECT F-Sort-Work-FILE     ASSIGN TO DISK.
 1419        DATA DIVISION.
 1420        FILE SECTION.
 1421        FD  F-Expanded-Src-FILE.
 1422        01  F-Expanded-Src-REC.
 1423            05 F-ES-1-CHR                 PIC X.
 1424            05 F-ES-2-256-TXT-256         PIC X(256).
 1425 GC0712 01  F-Expanded-Src2-REC.
 1426 GC0712     05 F-ES-1-7-TXT               PIC X(7).
 1427 GC0712     05 F-ES-8-256-TXT             PIC X(249).
 1428
 1429 GC0712 FD  F-Listing-FILE.
 1430 GC1213 01  F-Listing-96-REC              PIC X(96).
 1431 GC1213 01  F-Listing-135-REC             PIC X(135).
 1432        01  F-Listing-REC                 PIC X(135).
 1433
 1434        FD  F-Original-Src-FILE.
 1435        01  F-Original-Src-REC.
 1436 GC0410     05 F-OS-1-128-TXT.
 1437 GC0410         10 FILLER                 PIC X(6).
 1438 GC0410         10 F-OS-7-CHR             PIC X(1).
 1439 GC0712         10 F-OS-8-72-TXT          PIC X(65).
 1440 GC0712         10 FILLER                 PIC X(56).
 1441            05 F-OS-129-256-TXT           PIC X(128).
 1442
 1443        SD  F-Sort-Work-FILE.
 1444        01  F-Sort-Work-REC.
 1445            05 F-SW-Prog-ID-TXT           PIC X(15).
 1446            05 F-SW-Token-Uc-TXT          PIC X(32).
 1447            05 F-SW-Token-TXT             PIC X(32).
 1448            05 F-SW-Section-TXT           PIC X(15).
 1449            05 F-SW-Def-Line-NUM          PIC 9(6).
 1450            05 F-SW-Reference-TXT.
 1451                10 F-SW-Ref-Line-NUM      PIC 9(6).
 1452                10 F-SW-Ref-Flag-CHR      PIC X(1).
 1453
 1454        WORKING-STORAGE SECTION.
 1455 GC1213 01  WS-Copyright-TXT              PIC X(86).
 1456
 1457        01  WS-Curr-CHR                   PIC X(1).
 1458            88 WS-Curr-Char-Is-Punct-BOOL VALUE '=', '(', ')',
 1459                                                '*', '/', '&',
 1460                                                ';', ',', '<',
 1461                                                '>', ':'.
 1462            88 WS-Curr-Char-Is-Quote-BOOL VALUE "'", '"'.
 1463            88 WS-Curr-Char-Is-X-BOOL     VALUE 'x', 'X'.
 1464            88 WS-Curr-Char-Is-Z-BOOL     VALUE 'z', 'Z'.
 1465
 1466        01  WS-Curr-Division-TXT          PIC X(1).
 1467 GC1010     88 WS-CD-In-IDENT-DIV-BOOL    VALUE 'i', 'I', '?'.
 1468 GC1010     88 WS-CD-In-ENV-DIV-BOOL      VALUE 'e', 'E'.
 1469 GC1010     88 WS-CD-In-DATA-DIV-BOOL     VALUE 'd', 'D'.
 1470 GC1010     88 WS-CD-In-PROC-DIV-BOOL     VALUE 'p', 'P'.
```
==

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 37
====== ==============================================================================
  1471
  1472         01  WS-Curr-Line-NUM                  PIC 9(6).
  1473
  1474         01  WS-Curr-Prog-ID-TXT.
  1475             05 FILLER                          PIC X(12).
  1476             05 WS-CPI-13-15-TXT                PIC X(3).
  1477 GC0712      05 WS-CPI-16-CHR                   PIC X(1).
  1478
  1479         01  WS-Curr-Section-TXT.
  1480             05 WS-CS-1-CHR                     PIC X(1).
  1481             05 WS-CS-2-14-TXT.
  1482                 10 FILLER                      PIC X(10).
  1483                 10 WS-CS-11-14-TXT             PIC X(3).
  1484             05 WS-CS-15-CHR                    PIC X(1).
  1485
  1486         01  WS-Curr-Verb-TXT                  PIC X(12).
  1487
  1488         01  WS-Delim-TXT                      PIC X(2).
  1489
  1490         01  WS-Dummy-TXT                      PIC X(1).
  1491
  1492         01  WS-Expanded-Src-Fn-TXT            PIC X(256).
  1493
  1494         01  WS-Filename-TXT                   PIC X(256).
  1495
  1496 GC1213 01  WS-Flags-TXT.
  1497 GC1213     05 WS-Suppress-FF-CHR              PIC X(1).
  1498
  1499 GC1213 01  WS-Formatted-DT                    PIC 9999/99/99.
  1500
  1501         01  WS-Group-Indicators-TXT.
  1502             05 WS-GI-Prog-ID-TXT              PIC X(15).
  1503             05 WS-GI-Token-TXT                PIC X(32).
  1504
  1505         01  WS-Held-Reference-TXT             PIC X(100).
  1506
  1507         01  WS-I-SUB                          USAGE BINARY-LONG.
  1508
  1509         01  WS-J-SUB                          USAGE BINARY-LONG.
  1510
  1511         01  WS-Lines-Left-NUM                 USAGE BINARY-LONG.
  1512
  1513         01  WS-Lines-Per-Page-NUM             USAGE BINARY-LONG.
  1514
  1515         01  WS-Lines-Per-Page-Env-TXT         PIC X(256).
  1516
  1517 GC1010 01  WS-Main-Module-Name-TXT            PIC X(256).
  1518
  1519         01  WS-Next-CHR                       PIC X(1).
  1520             88 WS-Next-Char-Is-Quote-BOOL     VALUE '"', "'".
  1521
  1522         01  WS-OS-Type-FILLER-TXT.
  1523             05 VALUE 'Windows'                 PIC X(14).


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  1524   05 VALUE 'Windows/Cygwin'   PIC X(14).
  1525   05 VALUE 'UNIX/Linux'   PIC X(14).
  1526   05 VALUE 'OSX'   PIC X(14).
  1527   05 VALUE 'Windows/MinGW'   PIC X(14).
  1528   01 WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
  1529   05 WS-OS-Type-TXT   PIC X(14)
  1530   OCCURS 5 TIMES .
  1531
  1532 GC0712 01 WS-Page-NUM   USAGE BINARY-LONG.
  1533
  1534 GC0712 01 WS-Page-No-TXT.
  1535 GC0712   05 WS-PN-Literal-TXT   PIC X(6).
  1536 GC0712   05 WS-PN-Page-NUM   PIC Z(3)9.
  1537
  1538 GC1213 01 WS-Program-Path-TXT   PIC X(135).
  1539
  1540   01 WS-Reserved-Words-TXT.
  1541   05 VALUE '   ' PIC X(33).
  1542 GC1213   05 VALUE 'FABS   ' PIC X(33).
  1543   05 VALUE 'VACCEPT   ' PIC X(33).
  1544   05 VALUE ' ACCESS   ' PIC X(33).
  1545 GC1213   05 VALUE 'FACOS   ' PIC X(33).
  1546   05 VALUE ' ACTIVE-CLASS   ' PIC X(33).   UNIMPLEMENTED
  1547   05 VALUE 'VADD   ' PIC X(33).
  1548   05 VALUE ' ADDRESS   ' PIC X(33).
  1549   05 VALUE ' ADVANCING   ' PIC X(33).
  1550   05 VALUE 'KAFTER   ' PIC X(33).
  1551   05 VALUE ' ALIGNED   ' PIC X(33).   UNIMPLEMENTED
  1552   05 VALUE ' ALL   ' PIC X(33).
  1553   05 VALUE 'VALLOCATE   ' PIC X(33).
  1554   05 VALUE ' ALPHABET   ' PIC X(33).
  1555   05 VALUE ' ALPHABETIC   ' PIC X(33).
  1556   05 VALUE ' ALPHABETIC-LOWER   ' PIC X(33).
  1557   05 VALUE ' ALPHABETIC-UPPER   ' PIC X(33).
  1558   05 VALUE ' ALPHANUMERIC   ' PIC X(33).
  1559   05 VALUE ' ALPHANUMERIC-EDITED   ' PIC X(33).
  1560   05 VALUE ' ALSO   ' PIC X(33).
  1561   05 VALUE 'VALTER   ' PIC X(33).
  1562   05 VALUE ' ALTERNATE   ' PIC X(33).
  1563   05 VALUE ' AND   ' PIC X(33).
  1564 GC1213   05 VALUE 'FANNUITY   ' PIC X(33).
  1565   05 VALUE ' ANY   ' PIC X(33).
  1566   05 VALUE ' ANYCASE   ' PIC X(33).   UNIMPLEMENTED
  1567   05 VALUE ' ARE   ' PIC X(33).
  1568   05 VALUE ' AREA   ' PIC X(33).
  1569   05 VALUE ' AREAS   ' PIC X(33).
  1570   05 VALUE ' ARGUMENT-NUMBER   ' PIC X(33).
  1571   05 VALUE ' ARGUMENT-VALUE   ' PIC X(33).
  1572   05 VALUE ' ARITHMETIC   ' PIC X(33).   UNIMPLEMENTED
  1573   05 VALUE ' AS   ' PIC X(33).
  1574   05 VALUE ' ASCENDING   ' PIC X(33).
  1575   05 VALUE ' ASCII   ' PIC X(33).
  1576 GC1213   05 VALUE 'FASIN   ' PIC X(33).

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  1577   05 VALUE ' ASSIGN   ' PIC X(33).
  1578   05 VALUE ' AT   ' PIC X(33).
  1579 GC1213   05 VALUE 'FATAN   ' PIC X(33).
  1580 GC0711   05 VALUE ' ATTRIBUTE   ' PIC X(33).
  1581   05 VALUE ' AUTHOR   ' PIC X(33).   OBSOLETE
  1582   05 VALUE ' AUTO   ' PIC X(33).
  1583   05 VALUE ' AUTO-SKIP   ' PIC X(33).
  1584   05 VALUE ' AUTOMATIC   ' PIC X(33).
  1585   05 VALUE ' AUTOTERMINATE   ' PIC X(33).
  1586   05 VALUE ' AWAY-FROM-ZERO   ' PIC X(33).
  1587   05 VALUE ' B-AND   ' PIC X(33).   UNIMPLEMENTED
  1588   05 VALUE ' B-NOT   ' PIC X(33).   UNIMPLEMENTED
  1589   05 VALUE ' B-OR   ' PIC X(33).   UNIMPLEMENTED
  1590   05 VALUE ' B-XOR   ' PIC X(33).   UNIMPLEMENTED
  1591   05 VALUE ' BACKGROUND-COLOR   ' PIC X(33).
  1592   05 VALUE ' BACKGROUND-COLOUR   ' PIC X(33).
  1593   05 VALUE ' BASED   ' PIC X(33).
  1594   05 VALUE ' BEEP   ' PIC X(33).
  1595   05 VALUE ' BEFORE   ' PIC X(33).
  1596   05 VALUE ' BELL   ' PIC X(33).
  1597   05 VALUE ' BINARY   ' PIC X(33).
  1598   05 VALUE ' BINARY-C-LONG   ' PIC X(33).
  1599   05 VALUE ' BINARY-CHAR   ' PIC X(33).
  1600   05 VALUE ' BINARY-DOUBLE   ' PIC X(33).
  1601   05 VALUE ' BINARY-INT   ' PIC X(33).
  1602   05 VALUE ' BINARY-LONG   ' PIC X(33).
  1603   05 VALUE ' BINARY-LONG-LONG   ' PIC X(33).
  1604   05 VALUE ' BINARY-SHORT   ' PIC X(33).
  1605   05 VALUE ' BIT   ' PIC X(33).   UNIMPLEMENTED
  1606   05 VALUE ' BLANK   ' PIC X(33).
  1607   05 VALUE ' BLINK   ' PIC X(33).
  1608   05 VALUE ' BLOCK   ' PIC X(33).
  1609   05 VALUE ' BOOLEAN   ' PIC X(33).   UNIMPLEMENTED
  1610 GC1213   05 VALUE 'FBOOLEAN-OF-INTEGER   ' PIC X(33).   UNIMPLEMENTED
  1611   05 VALUE ' BOTTOM   ' PIC X(33).
  1612   05 VALUE 'YBY   ' PIC X(33).
  1613 GC1213   05 VALUE 'FBYTE-LENGTH   ' PIC X(33).
  1614   05 VALUE 'MC01   ' PIC X(33).
  1615   05 VALUE 'MC02   ' PIC X(33).
  1616   05 VALUE 'MC03   ' PIC X(33).
  1617   05 VALUE 'MC04   ' PIC X(33).
  1618   05 VALUE 'MC05   ' PIC X(33).
  1619   05 VALUE 'MC06   ' PIC X(33).
  1620   05 VALUE 'MC07   ' PIC X(33).
  1621   05 VALUE 'MC08   ' PIC X(33).
  1622   05 VALUE 'MC09   ' PIC X(33).
  1623   05 VALUE 'MC10   ' PIC X(33).
  1624   05 VALUE 'MC11   ' PIC X(33).
  1625   05 VALUE 'MC12   ' PIC X(33).
  1626   05 VALUE 'VCALL   ' PIC X(33).
  1627   05 VALUE 'MCALL-CONVENTION   ' PIC X(33).
  1628   05 VALUE 'VCANCEL   ' PIC X(33).
  1629   05 VALUE ' CAPACITY   ' PIC X(33).   UNIMPLEMENTED

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 1630           05 VALUE ' CD                           ' PIC X(33).     OBSOLETE
 1631           05 VALUE ' CENTER                       ' PIC X(33).     UNIMPLEMENTED
 1632           05 VALUE ' CF                           ' PIC X(33).
 1633           05 VALUE ' CH                           ' PIC X(33).
 1634           05 VALUE ' CHAIN                        ' PIC X(33).     UNIMPLEMENTED
 1635           05 VALUE ' CHAINING                     ' PIC X(33).
 1636 GC1213    05 VALUE 'FCHAR                         ' PIC X(33).
 1637 GC1213    05 VALUE 'FCHAR-NATIONAL                ' PIC X(33).     UNIMPLEMENTED
 1638           05 VALUE ' CHARACTER                    ' PIC X(33).
 1639           05 VALUE ' CHARACTERS                   ' PIC X(33).
 1640           05 VALUE ' CLASS                        ' PIC X(33).
 1641           05 VALUE ' CLASS-ID                     ' PIC X(33).     UNIMPLEMENTED
 1642 GC0711    05 VALUE ' CLASSIFICATION               ' PIC X(33).
 1643           05 VALUE 'VCLOSE                        ' PIC X(33).
 1644 GC1213    05 VALUE 'FCOB-CRT-STATUS               ' PIC X(33).
 1645           05 VALUE ' CODE                         ' PIC X(33).
 1646           05 VALUE ' CODE-SET                     ' PIC X(33).
 1647           05 VALUE ' COL                          ' PIC X(33).
 1648           05 VALUE ' COLLATING                    ' PIC X(33).
 1649           05 VALUE ' COLS                         ' PIC X(33).
 1650           05 VALUE ' COLUMN                       ' PIC X(33).
 1651           05 VALUE ' COLUMNS                      ' PIC X(33).
 1652 GC1213    05 VALUE 'FCOMBINED-DATETIME            ' PIC X(33).
 1653           05 VALUE ' COMMA                        ' PIC X(33).
 1654           05 VALUE ' COMMAND-LINE                 ' PIC X(33).
 1655           05 VALUE 'VCOMMIT                       ' PIC X(33).
 1656           05 VALUE ' COMMON                       ' PIC X(33).
 1657           05 VALUE ' COMMUNICATION                ' PIC X(33).     OBSOLETE
 1658           05 VALUE ' COMP                         ' PIC X(33).
 1659           05 VALUE ' COMP-1                       ' PIC X(33).
 1660           05 VALUE ' COMP-2                       ' PIC X(33).
 1661           05 VALUE ' COMP-3                       ' PIC X(33).
 1662           05 VALUE ' COMP-4                       ' PIC X(33).
 1663           05 VALUE ' COMP-5                       ' PIC X(33).
 1664           05 VALUE ' COMP-6                       ' PIC X(33).
 1665           05 VALUE ' COMP-X                       ' PIC X(33).
 1666           05 VALUE ' COMPUTATIONAL                ' PIC X(33).
 1667           05 VALUE ' COMPUTATIONAL-1              ' PIC X(33).
 1668           05 VALUE ' COMPUTATIONAL-2              ' PIC X(33).
 1669           05 VALUE ' COMPUTATIONAL-3              ' PIC X(33).
 1670           05 VALUE ' COMPUTATIONAL-4              ' PIC X(33).
 1671           05 VALUE ' COMPUTATIONAL-5              ' PIC X(33).
 1672           05 VALUE ' COMPUTATIONAL-X              ' PIC X(33).
 1673           05 VALUE 'VCOMPUTE                      ' PIC X(33).
 1674 GC1213    05 VALUE 'FCONCATENATE                  ' PIC X(33).
 1675 GC0712    05 VALUE ' CONDITION                    ' PIC X(33).
 1676           05 VALUE 'KCONFIGURATION                ' PIC X(33).
 1677           05 VALUE 'MCONSOLE                      ' PIC X(33).
 1678           05 VALUE ' CONSTANT                     ' PIC X(33).
 1679           05 VALUE ' CONTAINS                     ' PIC X(33).
 1680 GC0712    05 VALUE 'ACONTENT                      ' PIC X(33).
 1681           05 VALUE 'VCONTINUE                     ' PIC X(33).
 1682           05 VALUE ' CONTROL                      ' PIC X(33).
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 1683   05 VALUE ' CONTROLS   ' PIC X(33).
 1684 GC0711   05 VALUE ' CONVERSION   ' PIC X(33).
 1685   05 VALUE 'KCONVERTING   ' PIC X(33).
 1686   05 VALUE ' COPY   ' PIC X(33).
 1687   05 VALUE ' CORR   ' PIC X(33).
 1688   05 VALUE ' CORRESPONDING   ' PIC X(33).
 1689 GC1213   05 VALUE 'FCOS   ' PIC X(33).
 1690   05 VALUE 'KCOUNT   ' PIC X(33).
 1691   05 VALUE ' CRT   ' PIC X(33).
 1692   05 VALUE ' CRT-UNDER   ' PIC X(33).
 1693   05 VALUE 'MCSP   ' PIC X(33).
 1694   05 VALUE ' CURRENCY   ' PIC X(33).
 1695 GC1213   05 VALUE 'FCURRENCY-SYMBOL   ' PIC X(33).
 1696 GC1213   05 VALUE 'FCURRENT-DATE   ' PIC X(33).
 1697   05 VALUE ' CURSOR   ' PIC X(33).
 1698   05 VALUE ' CYCLE   ' PIC X(33).
 1699   05 VALUE 'KDATA   ' PIC X(33).
 1700   05 VALUE ' DATA-POINTER   ' PIC X(33).   UNIMPLEMENTED
 1701   05 VALUE ' DATE   ' PIC X(33).
 1702   05 VALUE ' DATE-COMPILED   ' PIC X(33).   OBSOLETE
 1703   05 VALUE ' DATE-MODIFIED   ' PIC X(33).   OBSOLETE
 1704 GC1213   05 VALUE 'FDATE-OF-INTEGER   ' PIC X(33).
 1705 GC1213   05 VALUE 'FDATE-TO-YYYYMMDD   ' PIC X(33).
 1706   05 VALUE ' DATE-WRITTEN   ' PIC X(33).   OBSOLETE
 1707   05 VALUE ' DAY   ' PIC X(33).
 1708 GC1213   05 VALUE 'FDAY-OF-INTEGER   ' PIC X(33).
 1709   05 VALUE ' DAY-OF-WEEK   ' PIC X(33).
 1710 GC1213   05 VALUE 'IDAY-TO-YYYYDDD   ' PIC X(33).
 1711   05 VALUE ' DE   ' PIC X(33).
 1712 GC0712   05 VALUE 'IDEBUG-CONTENTS   ' PIC X(33).
 1713 GC0712   05 VALUE 'IDEBUG-ITEM   ' PIC X(33).
 1714 GC0712   05 VALUE 'IDEBUG-LINE   ' PIC X(33).
 1715 GC0712   05 VALUE 'IDEBUG-NAME   ' PIC X(33).
 1716 GC0712   05 VALUE 'IDEBUG-SUB-1   ' PIC X(33).
 1717 GC0712   05 VALUE 'IDEBUG-SUB-2   ' PIC X(33).
 1718 GC0712   05 VALUE 'IDEBUG-SUB-3   ' PIC X(33).
 1719   05 VALUE ' DEBUGGING   ' PIC X(33).
 1720   05 VALUE ' DECIMAL-POINT   ' PIC X(33).
 1721   05 VALUE ' DECLARATIVES   ' PIC X(33).
 1722   05 VALUE ' DEFAULT   ' PIC X(33).
 1723   05 VALUE 'VDELETE   ' PIC X(33).
 1724   05 VALUE ' DELIMITED   ' PIC X(33).
 1725   05 VALUE 'KDELIMITER   ' PIC X(33).
 1726   05 VALUE ' DEPENDING   ' PIC X(33).
 1727   05 VALUE ' DESCENDING   ' PIC X(33).
 1728   05 VALUE ' DESTINATION   ' PIC X(33).   UNIMPLEMENTED
 1729   05 VALUE ' DETAIL   ' PIC X(33).
 1730 GC0711   05 VALUE ' DISC   ' PIC X(33).
 1731   05 VALUE ' DISK   ' PIC X(33).
 1732   05 VALUE 'VDISPLAY   ' PIC X(33).
 1733 GC1213   05 VALUE 'FDISPLAY-OF   ' PIC X(33).   UNIMPLEMENTED
 1734   05 VALUE 'VDIVIDE   ' PIC X(33).
 1735   05 VALUE 'KDIVISION   ' PIC X(33).
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 1736           05 VALUE 'KDOWN                        ' PIC X(33).
 1737           05 VALUE ' DUPLICATES                  ' PIC X(33).
 1738           05 VALUE ' DYNAMIC                     ' PIC X(33).
 1739 GC1213    05 VALUE 'FE                           ' PIC X(33).
 1740           05 VALUE ' EBCDIC                      ' PIC X(33).
 1741 GC0712    05 VALUE ' EC                          ' PIC X(33).
 1742           05 VALUE ' EGI                         ' PIC X(33).      OBSOLETE
 1743           05 VALUE 'VELSE                        ' PIC X(33).
 1744           05 VALUE ' EMI                         ' PIC X(33).      OBSOLETE
 1745           05 VALUE ' EMPTY-CHECK                 ' PIC X(33).
 1746           05 VALUE 'VENABLE                      ' PIC X(33).      OBSOLETE
 1747 GC0710    05 VALUE 'KEND                         ' PIC X(33).
 1748           05 VALUE ' END-ACCEPT                  ' PIC X(33).
 1749           05 VALUE ' END-ADD                     ' PIC X(33).
 1750           05 VALUE ' END-CALL                    ' PIC X(33).
 1751           05 VALUE ' END-CHAIN                   ' PIC X(33).      UNIMPLEMENTED
 1752           05 VALUE ' END-COMPUTE                 ' PIC X(33).
 1753           05 VALUE ' END-DELETE                  ' PIC X(33).
 1754           05 VALUE ' END-DISPLAY                 ' PIC X(33).
 1755           05 VALUE ' END-DIVIDE                  ' PIC X(33).
 1756           05 VALUE ' END-EVALUATE                ' PIC X(33).
 1757           05 VALUE ' END-IF                      ' PIC X(33).
 1758           05 VALUE ' END-MULTIPLY                ' PIC X(33).
 1759           05 VALUE ' END-OF-PAGE                 ' PIC X(33).
 1760           05 VALUE ' END-PERFORM                 ' PIC X(33).
 1761           05 VALUE ' END-READ                    ' PIC X(33).
 1762           05 VALUE ' END-RECEIVE                 ' PIC X(33).      OBSOLETE
 1763           05 VALUE ' END-RETURN                  ' PIC X(33).
 1764           05 VALUE ' END-REWRITE                 ' PIC X(33).
 1765           05 VALUE ' END-SEARCH                  ' PIC X(33).
 1766           05 VALUE ' END-START                   ' PIC X(33).
 1767           05 VALUE ' END-STRING                  ' PIC X(33).
 1768           05 VALUE ' END-SUBTRACT                ' PIC X(33).
 1769           05 VALUE ' END-UNSTRING                ' PIC X(33).
 1770           05 VALUE ' END-WRITE                   ' PIC X(33).
 1771           05 VALUE 'VENTRY                       ' PIC X(33).
 1772           05 VALUE ' ENTRY-CONVENTION            ' PIC X(33).      UNIMPLEMENTED
 1773           05 VALUE 'KENVIRONMENT                 ' PIC X(33).
 1774           05 VALUE ' ENVIRONMENT-NAME            ' PIC X(33).
 1775           05 VALUE ' ENVIRONMENT-VALUE           ' PIC X(33).
 1776           05 VALUE ' EO                          ' PIC X(33).      UNIMPLEMENTED
 1777           05 VALUE ' EOL                         ' PIC X(33).
 1778           05 VALUE ' EOP                         ' PIC X(33).
 1779           05 VALUE ' EOS                         ' PIC X(33).
 1780           05 VALUE ' EQUAL                       ' PIC X(33).
 1781           05 VALUE 'KEQUALS                      ' PIC X(33).
 1782           05 VALUE ' ERASE                       ' PIC X(33).
 1783           05 VALUE ' ERROR                       ' PIC X(33).
 1784           05 VALUE ' ESCAPE                      ' PIC X(33).
 1785           05 VALUE ' ESI                         ' PIC X(33).      OBSOLETE
 1786           05 VALUE 'VEVALUATE                    ' PIC X(33).
 1787           05 VALUE ' EXCEPTION                   ' PIC X(33).
 1788 GC1213    05 VALUE 'FEXCEPTION-FILE              ' PIC X(33).
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 1789 GC1213      05 VALUE 'FEXCEPTION-FILE-N              ' PIC X(33).      UNIMPLEMENTED
 1790 GC1213      05 VALUE 'FEXCEPTION-LOCATION            ' PIC X(33).
 1791 GC1213      05 VALUE 'FEXCEPTION-LOCATION-N          ' PIC X(33).      UNIMPLEMENTED
 1792              05 VALUE ' EXCEPTION-OBJECT              ' PIC X(33).      UNIMPLEMENTED
 1793 GC1213      05 VALUE 'FEXCEPTION-STATEMENT           ' PIC X(33).
 1794 GC1213      05 VALUE 'FEXCEPTION-STATUS              ' PIC X(33).
 1795              05 VALUE ' EXCLUSIVE                     ' PIC X(33).
 1796              05 VALUE 'VEXIT                          ' PIC X(33).
 1797 GC1213      05 VALUE 'FEXP                           ' PIC X(33).
 1798 GC1213      05 VALUE 'FEXP10                         ' PIC X(33).
 1799              05 VALUE ' EXPANDS                       ' PIC X(33).      UNIMPLEMENTED
 1800              05 VALUE ' EXTEND                        ' PIC X(33).
 1801              05 VALUE ' EXTERNAL                      ' PIC X(33).
 1802 GC1213      05 VALUE 'FFACTORIAL                     ' PIC X(33).
 1803              05 VALUE ' FACTORY                       ' PIC X(33).      UNIMPLEMENTED
 1804              05 VALUE ' FALSE                         ' PIC X(33).
 1805              05 VALUE 'KFD                            ' PIC X(33).
 1806              05 VALUE 'KFILE                          ' PIC X(33).
 1807              05 VALUE ' FILE-CONTROL                  ' PIC X(33).
 1808              05 VALUE ' FILE-ID                       ' PIC X(33).
 1809 GC1113      05 VALUE ' FILLER                        ' PIC X(33).
 1810              05 VALUE ' FINAL                         ' PIC X(33).
 1811              05 VALUE ' FIRST                         ' PIC X(33).
 1812 GC0712      05 VALUE ' FLOAT-BINARY-128              ' PIC X(33).      UNIMPLEMENTED
 1813 GC0712      05 VALUE ' FLOAT-BINARY-32               ' PIC X(33).      UNIMPLEMENTED
 1814 GC0712      05 VALUE ' FLOAT-BINARY-64               ' PIC X(33).      UNIMPLEMENTED
 1815              05 VALUE ' FLOAT-DECIMAL-16              ' PIC X(33).
 1816              05 VALUE ' FLOAT-DECIMAL-34              ' PIC X(33).
 1817              05 VALUE ' FLOAT-EXTENDED                ' PIC X(33).      UNIMPLEMENTED
 1818 GC0712      05 VALUE ' FLOAT-INFINITY                ' PIC X(33).      UNIMPLEMENTED
 1819              05 VALUE ' FLOAT-LONG                    ' PIC X(33).
 1820 GC0712      05 VALUE ' FLOAT-NOT-A-NUMBER            ' PIC X(33).      UNIMPLEMENTED
 1821              05 VALUE ' FLOAT-SHORT                   ' PIC X(33).
 1822              05 VALUE ' FOOTING                       ' PIC X(33).
 1823              05 VALUE ' FOR                           ' PIC X(33).
 1824              05 VALUE ' FOREGROUND-COLOR              ' PIC X(33).
 1825              05 VALUE ' FOREGROUND-COLOUR             ' PIC X(33).
 1826 GC0711      05 VALUE ' FOREVER                       ' PIC X(33).
 1827              05 VALUE ' FORMAT                        ' PIC X(33).      UNIMPLEMENTED
 1828 GC1213      05 VALUE 'FFORMATTED-CURRENT-DATE         ' PIC X(33).      UNIMPLEMENTED
 1829 GC1213      05 VALUE 'FFORMATTED-DATE                ' PIC X(33).      UNIMPLEMENTED
 1830 GC1213      05 VALUE 'FFORMATTED-DATETIME            ' PIC X(33).      UNIMPLEMENTED
 1831 GC1213      05 VALUE 'FFORMATTED-TIME                ' PIC X(33).      UNIMPLEMENTED
 1832              05 VALUE 'MFORMFEED                      ' PIC X(33).
 1833 GC1213      05 VALUE 'FFRACTION-PART                 ' PIC X(33).
 1834              05 VALUE 'VFREE                          ' PIC X(33).
 1835              05 VALUE ' FROM                          ' PIC X(33).
 1836              05 VALUE ' FULL                          ' PIC X(33).
 1837              05 VALUE ' FUNCTION                      ' PIC X(33).
 1838 GC0712      05 VALUE 'KFUNCTION-ID                   ' PIC X(33).
 1839              05 VALUE ' FUNCTION-POINTER              ' PIC X(33).      UNIMPLEMENTED
 1840              05 VALUE 'VGENERATE                      ' PIC X(33).
 1841              05 VALUE ' GET                           ' PIC X(33).      UNIMPLEMENTED

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                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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  1842          05 VALUE 'KGIVING                   ' PIC X(33).
  1843          05 VALUE ' GLOBAL                    ' PIC X(33).
  1844          05 VALUE 'VGO                        ' PIC X(33).
  1845          05 VALUE 'VGOBACK                    ' PIC X(33).
  1846          05 VALUE ' GREATER                   ' PIC X(33).
  1847          05 VALUE ' GROUP                     ' PIC X(33).
  1848          05 VALUE ' GROUP-USAGE               ' PIC X(33).    UNIMPLEMENTED
  1849          05 VALUE ' HEADING                   ' PIC X(33).
  1850          05 VALUE ' HIGH-VALUE                ' PIC X(33).
  1851          05 VALUE ' HIGH-VALUES               ' PIC X(33).
  1852 GC1213   05 VALUE 'FHIGHEST-ALGEBRAIC         ' PIC X(33).
  1853          05 VALUE ' HIGHLIGHT                 ' PIC X(33).
  1854          05 VALUE ' I-O                       ' PIC X(33).
  1855          05 VALUE ' I-O-CONTROL               ' PIC X(33).
  1856          05 VALUE 'KID                        ' PIC X(33).
  1857          05 VALUE 'KIDENTIFICATION            ' PIC X(33).
  1858          05 VALUE 'VIF                        ' PIC X(33).
  1859          05 VALUE ' IGNORE                    ' PIC X(33).
  1860          05 VALUE ' IGNORING                  ' PIC X(33).
  1861          05 VALUE ' IMPLEMENTS                ' PIC X(33).    UNIMPLEMENTED
  1862          05 VALUE ' IN                        ' PIC X(33).
  1863          05 VALUE ' INDEX                     ' PIC X(33).
  1864          05 VALUE 'KINDEXED                   ' PIC X(33).
  1865          05 VALUE ' INDICATE                  ' PIC X(33).
  1866          05 VALUE ' INDIRECT                  ' PIC X(33).    UNIMPLEMENTED
  1867          05 VALUE ' INHERITS                  ' PIC X(33).    UNIMPLEMENTED
  1868          05 VALUE ' INITIAL                   ' PIC X(33).
  1869          05 VALUE 'VINITIALISE                ' PIC X(33).
  1870          05 VALUE ' INITIALISED               ' PIC X(33).
  1871          05 VALUE 'VINITIALIZE                ' PIC X(33).
  1872          05 VALUE ' INITIALIZED               ' PIC X(33).
  1873          05 VALUE 'VINITIATE                  ' PIC X(33).
  1874          05 VALUE ' INPUT                     ' PIC X(33).
  1875          05 VALUE 'KINPUT-OUTPUT              ' PIC X(33).
  1876          05 VALUE 'VINSPECT                   ' PIC X(33).
  1877          05 VALUE ' INSTALLATION              ' PIC X(33).    OBSOLETE
  1878 GC1213   05 VALUE 'FINTEGER                   ' PIC X(33).
  1879 GC1213   05 VALUE 'FINTEGER-OF-BOOLEAN        ' PIC X(33).    UNIMPLEMENTED
  1880 GC1213   05 VALUE 'FINTEGER-OF-DATE           ' PIC X(33).
  1881 GC1213   05 VALUE 'FINTEGER-OF-DAY            ' PIC X(33).
  1882 GC1213   05 VALUE 'FINTEGER-OF-FORMATTED-DATE ' PIC X(33).    UNIMPLEMENTED
  1883 GC1213   05 VALUE 'FINTEGER-PART              ' PIC X(33).
  1884          05 VALUE ' INTERFACE                 ' PIC X(33).    UNIMPLEMENTED
  1885          05 VALUE ' INTERFACE-ID              ' PIC X(33).    UNIMPLEMENTED
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  1887          05 VALUE 'KINTO                      ' PIC X(33).
  1888          05 VALUE ' INTRINSIC                 ' PIC X(33).
  1889          05 VALUE ' INVALID                   ' PIC X(33).
  1890          05 VALUE ' INVOKE                    ' PIC X(33).    UNIMPLEMENTED
  1891          05 VALUE ' IS                        ' PIC X(33).
  1892          05 VALUE ' JUST                      ' PIC X(33).
  1893          05 VALUE ' JUSTIFIED                 ' PIC X(33).
  1894          05 VALUE ' KEPT                      ' PIC X(33).

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 1896           05 VALUE ' KEYBOARD                  ' PIC X(33).
 1897           05 VALUE ' LABEL                     ' PIC X(33).
 1898           05 VALUE ' LAST                      ' PIC X(33).
 1899           05 VALUE ' LC_ALL                    ' PIC X(33).        UNIMPLEMENTED
 1900           05 VALUE ' LC_COLLATE                ' PIC X(33).        UNIMPLEMENTED
 1901           05 VALUE ' LC_CTYPE                  ' PIC X(33).        UNIMPLEMENTED
 1902           05 VALUE ' LC_MESSAGES               ' PIC X(33).        UNIMPLEMENTED
 1903           05 VALUE ' LC_MONETARY               ' PIC X(33).        UNIMPLEMENTED
 1904           05 VALUE ' LC_NUMERIC                ' PIC X(33).        UNIMPLEMENTED
 1905           05 VALUE ' LC_TIME                   ' PIC X(33).        UNIMPLEMENTED
 1906           05 VALUE ' LEADING                   ' PIC X(33).
 1907           05 VALUE ' LEFT                      ' PIC X(33).
 1908           05 VALUE ' LEFT-JUSTIFY              ' PIC X(33).        UNIMPLEMENTED
 1909           05 VALUE ' LEFTLINE                  ' PIC X(33).
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 1911 GC1213    05 VALUE 'FLENGTH-AN                 ' PIC X(33).
 1912           05 VALUE ' LENGTH-CHECK              ' PIC X(33).
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 1921           05 VALUE 'KLINKAGE                   ' PIC X(33).
 1922           05 VALUE 'KLOCAL-STORAGE             ' PIC X(33).
 1923           05 VALUE ' LOCALE                    ' PIC X(33).
 1924 GC1213    05 VALUE 'FLOCALE-COMPARE            ' PIC X(33).
 1925 GC1213    05 VALUE 'FLOCALE-DATE               ' PIC X(33).
 1926 GC1213    05 VALUE 'FLOCALE-TIME               ' PIC X(33).
 1927 GC1213    05 VALUE 'FLOCALE-TIME-FROM-SECONDS  ' PIC X(33).
 1928           05 VALUE ' LOCK                      ' PIC X(33).
 1929 GC1213    05 VALUE 'FLOG                       ' PIC X(33).
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 1931           05 VALUE ' LOW-VALUE                 ' PIC X(33).
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 1933           05 VALUE ' LOWER                     ' PIC X(33).
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 1935 GC1213    05 VALUE 'FLOWEST-ALGEBRAIC          ' PIC X(33).
 1936           05 VALUE ' LOWLIGHT                  ' PIC X(33).
 1937           05 VALUE ' MANUAL                    ' PIC X(33).
 1938 GC1213    05 VALUE 'FMAX                       ' PIC X(33).
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 1943           05 VALUE ' MESSAGE                   ' PIC X(33).        OBSOLETE
 1944           05 VALUE ' METHOD                    ' PIC X(33).        UNIMPLEMENTED
 1945           05 VALUE ' METHOD-ID                 ' PIC X(33).        UNIMPLEMENTED
 1946 GC1213    05 VALUE 'FMIDRANGE                  ' PIC X(33).
 1947 GC1213    05 VALUE 'FMIN                       ' PIC X(33).

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 1949 GC1213    05 VALUE 'FMOD                           ' PIC X(33).
 1950           05 VALUE ' MODE                          ' PIC X(33).
 1951 GC1213    05 VALUE 'FMODULE-CALLER-ID              ' PIC X(33).
 1952 GC1213    05 VALUE 'FMODULE-DATE                   ' PIC X(33).
 1953 GC1213    05 VALUE 'FMODULE-FORMATTED-DATE         ' PIC X(33).
 1954 GC1213    05 VALUE 'FMODULE-ID                     ' PIC X(33).
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 1956 GC1213    05 VALUE 'FMODULE-SOURCE                 ' PIC X(33).
 1957 GC1213    05 VALUE 'FMODULE-TIME                   ' PIC X(33).
 1958 GC1213    05 VALUE 'FMONETARY-DECIMAL-POINT        ' PIC X(33).
 1959 GC1213    05 VALUE 'FMONETARY-THOUSANDS-SEPARATOR  ' PIC X(33).
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 1961           05 VALUE ' MULTIPLE                      ' PIC X(33).
 1962           05 VALUE 'VMULTIPLY                      ' PIC X(33).
 1963 GC0711    05 VALUE ' NAME                          ' PIC X(33).
 1964           05 VALUE ' NATIONAL                      ' PIC X(33).
 1965           05 VALUE ' NATIONAL-EDITED               ' PIC X(33).
 1966 GC1213    05 VALUE 'FNATIONAL-OF                   ' PIC X(33).      UNIMPLEMENTED
 1967           05 VALUE ' NATIVE                        ' PIC X(33).
 1968           05 VALUE ' NEAREST-AWAY-FROM-ZERO        ' PIC X(33).
 1969           05 VALUE ' NEAREST-EVEN                  ' PIC X(33).
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 1971           05 VALUE ' NEGATIVE                      ' PIC X(33).
 1972           05 VALUE ' NESTED                        ' PIC X(33).      UNIMPLEMENTED
 1973           05 VALUE 'VNEXT                          ' PIC X(33).
 1974           05 VALUE ' NO                            ' PIC X(33).
 1975           05 VALUE ' NO-ECHO                       ' PIC X(33).
 1976           05 VALUE ' NONE                          ' PIC X(33).      UNIMPLEMENTED
 1977           05 VALUE ' NORMAL                        ' PIC X(33).
 1978           05 VALUE ' NOT                           ' PIC X(33).
 1979           05 VALUE ' NULL                          ' PIC X(33).
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 1981           05 VALUE ' NUMBER                        ' PIC X(33).
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 1984           05 VALUE ' NUMERIC                       ' PIC X(33).
 1985 GC1213    05 VALUE 'FNUMERIC-DECIMAL-POINT         ' PIC X(33).
 1986           05 VALUE ' NUMERIC-EDITED                ' PIC X(33).
 1987 GC1213    05 VALUE 'FNUMERIC-THOUSANDS-SEPARATOR   ' PIC X(33).
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 1989 GC1213    05 VALUE 'FNUMVAL-C                      ' PIC X(33).
 1990 GC1213    05 VALUE 'FNUMVAL-F                      ' PIC X(33).
 1991           05 VALUE ' OBJECT                        ' PIC X(33).      UNIMPLEMENTED
 1992           05 VALUE ' OBJECT-COMPUTER               ' PIC X(33).
 1993           05 VALUE ' OBJECT-REFERENCE              ' PIC X(33).      UNIMPLEMENTED
 1994           05 VALUE ' OCCURS                        ' PIC X(33).
 1995           05 VALUE ' OF                            ' PIC X(33).
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 1997           05 VALUE ' OMITTED                       ' PIC X(33).
 1998           05 VALUE ' ON                            ' PIC X(33).
 1999           05 VALUE ' ONLY                          ' PIC X(33).
 2000           05 VALUE 'VOPEN                          ' PIC X(33).

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 2002            05 VALUE ' OPTIONS                       ' PIC X(33).      UNIMPLEMENTED
 2003            05 VALUE ' OR                            ' PIC X(33).
 2004 GC1213     05 VALUE 'FORD                           ' PIC X(33).
 2005 GC1213     05 VALUE 'FORD-MAX                       ' PIC X(33).
 2006 GC1213     05 VALUE 'FORD-MIN                       ' PIC X(33).
 2007            05 VALUE ' ORDER                         ' PIC X(33).
 2008            05 VALUE ' ORGANISATION                  ' PIC X(33).
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 2010            05 VALUE ' OTHER                         ' PIC X(33).
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 2013            05 VALUE ' OVERLINE                      ' PIC X(33).
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 2015            05 VALUE ' PACKED-DECIMAL                ' PIC X(33).
 2016            05 VALUE ' PADDING                       ' PIC X(33).
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 2018 GC1213     05 VALUE 'IPAGE-COUNTER                  ' PIC X(33).
 2019            05 VALUE ' PARAGRAPH                     ' PIC X(33).
 2020            05 VALUE 'VPERFORM                       ' PIC X(33).
 2021            05 VALUE ' PF                            ' PIC X(33).
 2022            05 VALUE ' PH                            ' PIC X(33).
 2023 GC1213     05 VALUE 'FPI                            ' PIC X(33).
 2024            05 VALUE 'KPIC                           ' PIC X(33).
 2025            05 VALUE 'KPICTURE                       ' PIC X(33).
 2026            05 VALUE ' PLUS                          ' PIC X(33).
 2027            05 VALUE 'KPOINTER                       ' PIC X(33).
 2028            05 VALUE ' POSITION                      ' PIC X(33).
 2029            05 VALUE ' POSITIVE                      ' PIC X(33).
 2030            05 VALUE ' PREFIXED                      ' PIC X(33).      UNIMPLEMENTED
 2031            05 VALUE ' PRESENT                       ' PIC X(33).
 2032 GC1213     05 VALUE 'FPRESENT-VALUE                 ' PIC X(33).
 2033            05 VALUE ' PREVIOUS                      ' PIC X(33).
 2034            05 VALUE 'MPRINTER                       ' PIC X(33).
 2035            05 VALUE ' PRINTING                      ' PIC X(33).
 2036            05 VALUE 'KPROCEDURE                     ' PIC X(33).
 2037            05 VALUE ' PROCEDURE-POINTER             ' PIC X(33).
 2038            05 VALUE ' PROCEDURES                    ' PIC X(33).
 2039            05 VALUE ' PROCEED                       ' PIC X(33).
 2040            05 VALUE ' PROGRAM                       ' PIC X(33).
 2041            05 VALUE 'KPROGRAM-ID                    ' PIC X(33).
 2042            05 VALUE ' PROGRAM-POINTER               ' PIC X(33).
 2043            05 VALUE ' PROHIBITED                    ' PIC X(33).
 2044            05 VALUE ' PROMPT                        ' PIC X(33).
 2045            05 VALUE ' PROPERTY                      ' PIC X(33).      UNIMPLEMENTED
 2046            05 VALUE ' PROTOTYPE                     ' PIC X(33).      UNIMPLEMENTED
 2047            05 VALUE ' PURGE                         ' PIC X(33).      OBSOLETE
 2048            05 VALUE ' QUEUE                         ' PIC X(33).      OBSOLETE
 2049            05 VALUE ' QUOTE                         ' PIC X(33).
 2050            05 VALUE ' QUOTES                        ' PIC X(33).
 2051            05 VALUE ' RAISE                         ' PIC X(33).      UNIMPLEMENTED
 2052            05 VALUE ' RAISING                       ' PIC X(33).      UNIMPLEMENTED
 2053 GC1213     05 VALUE 'FRANDOM                        ' PIC X(33).
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  2054 GC1213      05 VALUE 'FRANGE                          ' PIC X(33).
  2055 GC1213      05 VALUE 'KRD                             ' PIC X(33).
  2056         05 VALUE 'VREAD                           ' PIC X(33).
  2057         05 VALUE 'VREADY                          ' PIC X(33).
  2058         05 VALUE 'VRECEIVE                        ' PIC X(33).       OBSOLETE
  2059         05 VALUE ' RECORD                         ' PIC X(33).
  2060         05 VALUE ' RECORDING                      ' PIC X(33).
  2061         05 VALUE ' RECORDS                        ' PIC X(33).
  2062         05 VALUE ' RECURSIVE                      ' PIC X(33).
  2063         05 VALUE 'KREDEFINES                      ' PIC X(33).
  2064         05 VALUE ' REEL                           ' PIC X(33).
  2065 GC0712      05 VALUE 'AREFERENCE                      ' PIC X(33).
  2066         05 VALUE ' REFERENCES                     ' PIC X(33).
  2067         05 VALUE ' RELATION                       ' PIC X(33).       UNIMPLEMENTED
  2068         05 VALUE ' RELATIVE                       ' PIC X(33).
  2069         05 VALUE 'VRELEASE                        ' PIC X(33).
  2070 GC1213      05 VALUE 'FREM                            ' PIC X(33).
  2071         05 VALUE ' REMAINDER                      ' PIC X(33).
  2072         05 VALUE ' REMARKS                        ' PIC X(33).       OBSOLETE
  2073         05 VALUE ' REMOVAL                        ' PIC X(33).
  2074         05 VALUE 'KRENAMES                        ' PIC X(33).
  2075         05 VALUE ' REPLACE                        ' PIC X(33).
  2076         05 VALUE 'KREPLACING                      ' PIC X(33).
  2077         05 VALUE 'KREPORT                         ' PIC X(33).
  2078         05 VALUE ' REPORTING                      ' PIC X(33).
  2079         05 VALUE ' REPORTS                        ' PIC X(33).
  2080         05 VALUE ' REPOSITORY                     ' PIC X(33).
  2081         05 VALUE ' REQUIRED                       ' PIC X(33).
  2082         05 VALUE ' RESERVE                        ' PIC X(33).
  2083         05 VALUE 'VRESET                          ' PIC X(33).
  2084         05 VALUE ' RESUME                         ' PIC X(33).       UNIMPLEMENTED
  2085         05 VALUE ' RETRY                          ' PIC X(33).       UNIMPLEMENTED
  2086         05 VALUE 'VRETURN                         ' PIC X(33).
  2087         05 VALUE 'IRETURN-CODE                    ' PIC X(33).
  2088         05 VALUE 'KRETURNING                      ' PIC X(33).
  2089 GC1213      05 VALUE 'FREVERSE                        ' PIC X(33).
  2090         05 VALUE ' REVERSE-VIDEO                  ' PIC X(33).
  2091         05 VALUE ' REVERSED                       ' PIC X(33).
  2092         05 VALUE ' REWIND                         ' PIC X(33).
  2093         05 VALUE 'VREWRITE                        ' PIC X(33).
  2094         05 VALUE ' RF                             ' PIC X(33).
  2095         05 VALUE ' RH                             ' PIC X(33).
  2096         05 VALUE ' RIGHT                          ' PIC X(33).
  2097         05 VALUE ' RIGHT-JUSTIFY                  ' PIC X(33).       UNIMPLEMENTED
  2098         05 VALUE 'VROLLBACK                       ' PIC X(33).
  2099         05 VALUE ' ROUNDED                        ' PIC X(33).
  2100         05 VALUE ' ROUNDING                       ' PIC X(33).       UNIMPLEMENTED
  2101         05 VALUE ' RUN                            ' PIC X(33).
  2102         05 VALUE ' SAME                           ' PIC X(33).
  2103         05 VALUE 'KSCREEN                         ' PIC X(33).
  2104         05 VALUE ' SCROLL                         ' PIC X(33).
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  2106         05 VALUE 'VSEARCH                         ' PIC X(33).

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 2107            05 VALUE ' SECONDS                     ' PIC X(33).     UNIMPLEMENTED
 2108 GC1213     05 VALUE 'FSECONDS-FROM-FORMATTED-TIME  ' PIC X(33).
 2109 GC1213     05 VALUE 'FSECONDS-PAST-MIDNIGHT        ' PIC X(33).
 2110            05 VALUE 'KSECTION                      ' PIC X(33).
 2111            05 VALUE ' SECURE                       ' PIC X(33).
 2112            05 VALUE ' SECURITY                     ' PIC X(33).     OBSOLETE
 2113            05 VALUE ' SEGMENT                      ' PIC X(33).     OBSOLETE
 2114            05 VALUE ' SEGMENT-LIMIT                ' PIC X(33).
 2115            05 VALUE ' SELECT                       ' PIC X(33).
 2116            05 VALUE ' SELF                         ' PIC X(33).     UNIMPLEMENTED
 2117            05 VALUE 'VSEND                         ' PIC X(33).     OBSOLETE
 2118            05 VALUE ' SENTENCE                     ' PIC X(33).
 2119            05 VALUE ' SEPARATE                     ' PIC X(33).
 2120            05 VALUE ' SEQUENCE                     ' PIC X(33).
 2121            05 VALUE ' SEQUENTIAL                   ' PIC X(33).
 2122            05 VALUE 'VSET                          ' PIC X(33).
 2123            05 VALUE ' SHARING                      ' PIC X(33).
 2124 GC1213     05 VALUE 'FSIGN                         ' PIC X(33).
 2125            05 VALUE ' SIGNED                       ' PIC X(33).
 2126            05 VALUE ' SIGNED-INT                   ' PIC X(33).
 2127            05 VALUE ' SIGNED-LONG                  ' PIC X(33).
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 2129 GC1213     05 VALUE 'FSIN                          ' PIC X(33).
 2130            05 VALUE ' SIZE                         ' PIC X(33).
 2131            05 VALUE 'VSORT                         ' PIC X(33).
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 2134            05 VALUE ' SOURCE                       ' PIC X(33).
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 2137            05 VALUE ' SPACE                        ' PIC X(33).
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 2141 GC1213     05 VALUE 'FSQRT                         ' PIC X(33).
 2142            05 VALUE ' STANDARD                     ' PIC X(33).
 2143            05 VALUE ' STANDARD-1                   ' PIC X(33).
 2144            05 VALUE ' STANDARD-2                   ' PIC X(33).
 2145            05 VALUE ' STANDARD-BINARY              ' PIC X(33).     UNIMPLEMENTED
 2146 GC1213     05 VALUE 'FSTANDARD-COMPARE             ' PIC X(33).     UNIMPLEMENTED
 2147            05 VALUE ' STANDARD-DECIMAL             ' PIC X(33).     UNIMPLEMENTED
 2148 GC1213     05 VALUE 'FSTANDARD-DEVIATION           ' PIC X(33).
 2149            05 VALUE 'VSTART                        ' PIC X(33).
 2150            05 VALUE ' STATEMENT                    ' PIC X(33).     UNIMPLEMENTED
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 2154            05 VALUE 'MSTDERR                       ' PIC X(33).
 2155            05 VALUE 'MSTDIN                        ' PIC X(33).
 2156            05 VALUE 'MSTDOUT                       ' PIC X(33).
 2157            05 VALUE ' STEP                         ' PIC X(33).
 2158            05 VALUE 'VSTOP                         ' PIC X(33).
 2159 GC1213     05 VALUE 'FSTORED-CHAR-LENGTH           ' PIC X(33).
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  2160   05 VALUE 'VSTRING   ' PIC X(33).
  2161   05 VALUE ' STRONG   ' PIC X(33).   UNIMPLEMENTED
  2162   05 VALUE ' SUB-QUEUE-1   ' PIC X(33).   OBSOLETE
  2163   05 VALUE ' SUB-QUEUE-2   ' PIC X(33).   OBSOLETE
  2164   05 VALUE ' SUB-QUEUE-3   ' PIC X(33).   OBSOLETE
  2165 GC1213   05 VALUE 'FSUBSTITUTE   ' PIC X(33).
  2166 GC1213   05 VALUE 'FSUBSTITUTE-CASE   ' PIC X(33).
  2167   05 VALUE 'VSUBTRACT   ' PIC X(33).
  2168 GC1213   05 VALUE 'FSUM   ' PIC X(33).
  2169   05 VALUE ' SUPER   ' PIC X(33).   UNIMPLEMENTED
  2170   05 VALUE 'VSUPPRESS   ' PIC X(33).
  2171   05 VALUE 'MSW0   ' PIC X(33).
  2172   05 VALUE 'MSW1   ' PIC X(33).
  2173   05 VALUE 'MSW10   ' PIC X(33).
  2174   05 VALUE 'MSW11   ' PIC X(33).
  2175   05 VALUE 'MSW12   ' PIC X(33).
  2176   05 VALUE 'MSW13   ' PIC X(33).
  2177   05 VALUE 'MSW14   ' PIC X(33).
  2178   05 VALUE 'MSW15   ' PIC X(33).
  2179   05 VALUE 'MSW2   ' PIC X(33).
  2180   05 VALUE 'MSW3   ' PIC X(33).
  2181   05 VALUE 'MSW4   ' PIC X(33).
  2182   05 VALUE 'MSW5   ' PIC X(33).
  2183   05 VALUE 'MSW6   ' PIC X(33).
  2184   05 VALUE 'MSW7   ' PIC X(33).
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  2187   05 VALUE 'MSWITCH-0   ' PIC X(33).
  2188   05 VALUE 'MSWITCH-1   ' PIC X(33).
  2189   05 VALUE 'MSWITCH-10   ' PIC X(33).
  2190   05 VALUE 'MSWITCH-11   ' PIC X(33).
  2191   05 VALUE 'MSWITCH-12   ' PIC X(33).
  2192   05 VALUE 'MSWITCH-13   ' PIC X(33).
  2193   05 VALUE 'MSWITCH-14   ' PIC X(33).
  2194   05 VALUE 'MSWITCH-15   ' PIC X(33).
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  2201   05 VALUE 'MSWITCH-8   ' PIC X(33).
  2202   05 VALUE 'MSWITCH-9   ' PIC X(33).
  2203   05 VALUE ' SYMBOL   ' PIC X(33).   UNIMPLEMENTED
  2204   05 VALUE ' SYMBOLIC   ' PIC X(33).
  2205   05 VALUE ' SYNC   ' PIC X(33).
  2206   05 VALUE ' SYNCHRONISED   ' PIC X(33).
  2207   05 VALUE ' SYNCHRONIZED   ' PIC X(33).
  2208   05 VALUE 'MSYSERR   ' PIC X(33).
  2209   05 VALUE 'MSYSIN   ' PIC X(33).
  2210   05 VALUE 'MSYSIPT   ' PIC X(33).
  2211   05 VALUE 'MSYSLIST   ' PIC X(33).
  2212   05 VALUE 'MSYSLST   ' PIC X(33).

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 2214           05 VALUE ' SYSTEM-DEFAULT               ' PIC X(33).
 2215           05 VALUE ' TABLE                        ' PIC X(33).      UNIMPLEMENTED
 2216           05 VALUE 'KTALLYING                     ' PIC X(33).
 2217 GC1213    05 VALUE 'FTAN                          ' PIC X(33).
 2218           05 VALUE ' TAPE                         ' PIC X(33).
 2219           05 VALUE ' TERMINAL                     ' PIC X(33).      OBSOLETE
 2220           05 VALUE 'VTERMINATE                    ' PIC X(33).
 2221           05 VALUE ' TEST                         ' PIC X(33).
 2222 GC1213    05 VALUE 'FTEST-DATE-YYYYMMDD           ' PIC X(33).
 2223 GC1213    05 VALUE 'FTEST-DAY-YYYYDDD             ' PIC X(33).
 2224 GC1213    05 VALUE 'FTEST-FORMATTED-DATETIME      ' PIC X(33).      UNIMPLEMENTED
 2225 GC1213    05 VALUE 'FTEST-NUMVAL                  ' PIC X(33).
 2226 GC1213    05 VALUE 'FTEST-NUMVAL-C                ' PIC X(33).
 2227 GC1213    05 VALUE 'FTEST-NUMVAL-F                ' PIC X(33).
 2228           05 VALUE ' TEXT                         ' PIC X(33).      OBSOLETE
 2229           05 VALUE ' THAN                         ' PIC X(33).
 2230           05 VALUE ' THEN                         ' PIC X(33).
 2231           05 VALUE ' THROUGH                      ' PIC X(33).
 2232           05 VALUE ' THRU                         ' PIC X(33).
 2233           05 VALUE ' TIME                         ' PIC X(33).
 2234 GC0711    05 VALUE ' TIME-OUT                     ' PIC X(33).
 2235 GC0711    05 VALUE ' TIMEOUT                      ' PIC X(33).
 2236           05 VALUE ' TIMES                        ' PIC X(33).
 2237           05 VALUE 'KTO                           ' PIC X(33).
 2238           05 VALUE ' TOP                          ' PIC X(33).
 2239           05 VALUE ' TOWARD-GREATER               ' PIC X(33).
 2240           05 VALUE ' TOWARD-LESSER                ' PIC X(33).
 2241           05 VALUE ' TRAILING                     ' PIC X(33).
 2242           05 VALUE ' TRAILING-SIGN                ' PIC X(33).      UNIMPLEMENTED
 2243           05 VALUE 'VTRANSFORM                    ' PIC X(33).
 2244 GC1213    05 VALUE 'FTRIM                         ' PIC X(33).
 2245           05 VALUE ' TRUE                         ' PIC X(33).
 2246           05 VALUE ' TRUNCATION                   ' PIC X(33).
 2247           05 VALUE ' TYPE                         ' PIC X(33).
 2248           05 VALUE ' TYPEDEF                      ' PIC X(33).      UNIMPLEMENTED
 2249           05 VALUE ' UCS-4                        ' PIC X(33).      UNIMPLEMENTED
 2250           05 VALUE ' UNDERLINE                    ' PIC X(33).
 2251           05 VALUE ' UNIT                         ' PIC X(33).
 2252           05 VALUE ' UNIVERSAL                    ' PIC X(33).      UNIMPLEMENTED
 2253           05 VALUE 'VUNLOCK                       ' PIC X(33).
 2254           05 VALUE ' UNSIGNED                     ' PIC X(33).
 2255           05 VALUE ' UNSIGNED-INT                 ' PIC X(33).
 2256           05 VALUE ' UNSIGNED-LONG                ' PIC X(33).
 2257           05 VALUE ' UNSIGNED-SHORT               ' PIC X(33).
 2258           05 VALUE 'VUNSTRING                     ' PIC X(33).
 2259           05 VALUE ' UNTIL                        ' PIC X(33).
 2260           05 VALUE 'KUP                           ' PIC X(33).
 2261           05 VALUE ' UPDATE                       ' PIC X(33).
 2262           05 VALUE ' UPON                         ' PIC X(33).
 2263           05 VALUE ' UPPER                        ' PIC X(33).
 2264 GC1213    05 VALUE 'FUPPER-CASE                   ' PIC X(33).
 2265           05 VALUE ' USAGE                        ' PIC X(33).
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====== =========================================================================
 2266            05 VALUE 'VUSE                   ' PIC X(33).
 2267 GC0711     05 VALUE ' USER                  ' PIC X(33).
 2268            05 VALUE ' USER-DEFAULT          ' PIC X(33).
 2269            05 VALUE 'KUSING                 ' PIC X(33).
 2270            05 VALUE ' UTF-16                ' PIC X(33).      UNIMPLEMENTED
 2271            05 VALUE ' UTF-8                 ' PIC X(33).      UNIMPLEMENTED
 2272            05 VALUE ' VAL-STATUS            ' PIC X(33).      UNIMPLEMENTED
 2273            05 VALUE ' VALID                 ' PIC X(33).      UNIMPLEMENTED
 2274            05 VALUE ' VALIDATE              ' PIC X(33).      UNIMPLEMENTED
 2275            05 VALUE ' VALIDATE-STATUS       ' PIC X(33).      UNIMPLEMENTED
 2276 GC0712     05 VALUE 'AVALUE                 ' PIC X(33).
 2277            05 VALUE ' VALUES                ' PIC X(33).
 2278 GC1213     05 VALUE 'FVARIANCE              ' PIC X(33).
 2279            05 VALUE 'KVARYING               ' PIC X(33).
 2280            05 VALUE ' VDISABLE              ' PIC X(33).      UNIMPLEMENTED
 2281            05 VALUE ' WAIT                  ' PIC X(33).
 2282            05 VALUE 'VWHEN                  ' PIC X(33).
 2283 GC1213     05 VALUE 'FWHEN-COMPILED         ' PIC X(33).
 2284            05 VALUE ' WITH                  ' PIC X(33).
 2285            05 VALUE ' WORDS                 ' PIC X(33).
 2286            05 VALUE 'KWORKING-STORAGE       ' PIC X(33).
 2287            05 VALUE 'VWRITE                 ' PIC X(33).
 2288 GC1213     05 VALUE 'FYEAR-TO-YYYY          ' PIC X(33).
 2289            05 VALUE ' YYYYDDD               ' PIC X(33).
 2290            05 VALUE ' YYYYMMDD              ' PIC X(33).
 2291            05 VALUE ' ZERO                  ' PIC X(33).
 2292            05 VALUE ' ZERO-FILL             ' PIC X(33).      UNIMPLEMENTED
 2293            05 VALUE ' ZEROES                ' PIC X(33).
 2294            05 VALUE ' ZEROS                 ' PIC X(33).
 2295       01  WS-Reserved-Word-Table-TXT REDEFINES WS-Reserved-Words-TXT.
 2296 GC1113     05 WS-Reserved-Word-TXT       OCCURS 754 TIMES
 2297                                            ASCENDING KEY
 2298                                              WS-RW-Word-TXT
 2299                                            INDEXED WS-RW-IDX.
 2300              10 WS-RW-Type-CD           PIC X(1).
 2301              10 WS-RW-Word-TXT          PIC X(32).
 2302
 2303       01  WS-Runtime-Switches.
 2304 GC0710     05 WS-RS-Duplicate-CHR        PIC X(1).
 2305            05 WS-RS-In-Which-Pgm-CHR     PIC X(1).
 2306              88 WS-RS-In-Main-Module-BOOL    VALUE 'M'.
 2307              88 WS-RS-In-Copybook-BOOL       VALUE 'C'.
 2308            05 WS-RS-Last-Token-Ended-Sent-CHR  PIC X(1).
 2309            05 WS-RS-Processing-PICTURE-CHR  PIC X(1).
 2310            05 WS-RS-Token-Ended-Sentence-CHR  PIC X(1).
 2311 GC0710     05 WS-RS-Verb-Has-Been-Found-CHR  PIC X(1).
 2312
 2313       01  WS-Saved-Section-TXT          PIC X(15).
 2314
 2315 GC1213 01  WS-Src-Dashes-TXT.
 2316 GC0712     05 VALUE '======'            PIC X(7).
 2317 GC0712     05 VALUE ALL '='             PIC X(128).
 2318
```

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```
 2319        01  WS-Src-Detail-Line-TXT.
 2320            05 WS-SDL-Line-NUM                    PIC ZZZZZ9.
 2321            05 FILLER                             PIC X(1).
 2322            05 WS-SDL-Statement-TXT               PIC X(256).
 2323
 2324 GC1213 01  WS-Src-Hold-TXT                       PIC X(256).
 2325
 2326        01  WS-Src-Line-NUM                       PIC 9(6).
 2327
 2328 GC1213 01  WS-Src-Lines-NUM                      USAGE BINARY-LONG.
 2329
 2330        01  WS-Src-SUB                            USAGE BINARY-LONG.
 2331
 2332        01  WS-Tally-QTY                          USAGE BINARY-LONG.
 2333
 2334        01  WS-Temp-10-Chars-TXT                  PIC X(10).
 2335
 2336        01  WS-Temp-32-Chars-1-TXT                PIC X(32).
 2337
 2338 GC0711 01  WS-Temp-32-Chars-2-TXT                PIC X(32).
 2339
 2340 GC0711 01  WS-Temp-32-Chars-3-TXT                PIC X(32).
 2341
 2342 GC0712 01  WS-Temp-65-Chars-TXT                  PIC X(65).
 2343
 2344        01  WS-Temp-256-Chars-TXT                 PIC X(256).
 2345
 2346        01  WS-Today-DT                           PIC 9(8).
 2347
 2348        01  WS-Token-Curr-TXT                     PIC X(32).
 2349
 2350        01  WS-Token-Curr-Uc-TXT                  PIC X(32).
 2351
 2352        01  WS-Token-Prev-TXT                     PIC X(32).
 2353
 2354        01  WS-Token-Search-TXT                   PIC X(32).
 2355
 2356        01  WS-Token-Type-CD                      PIC X(1).
 2357 GC0712     88 WS-TT-Token-Is-Argtype-BOOL        VALUE 'A'.
 2358            88 WS-TT-Token-Is-EOF-BOOL            VALUE HIGH-VALUES.
 2359 GC1213     88 WS-TT-Token-Is-Function-BOOL       VALUE 'F'.
 2360            88 WS-TT-Token-Is-Identifier-BOOL     VALUE 'I'.
 2361 GC0712     88 WS-TT-Token-Is-Keyword-BOOL        VALUE 'K', 'V', 'A'.
 2362            88 WS-TT-Token-Is-Lit-Alpha-BOOL      VALUE 'L'.
 2363            88 WS-TT-Token-Is-Lit-Number-BOOL     VALUE 'N'.
 2364            88 WS-TT-Token-Is-Verb-BOOL           VALUE 'V'.
 2365 GC1213     88 WS-TT-Token-Is-Reserved-Wd-BOOL    VALUE ' ', 'F'.
 2366
 2367        01  WS-Usernames-QTY                      USAGE BINARY-LONG.
 2368
 2369        01  WS-Version-TXT                        PIC X(23).
 2370
 2371        01  WS-Xref-Detail-Line-TXT.
```
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```
GNUCOBOL 2.2 20JUL2017  Source Listing                                        2017/07/22
                                                 /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 54
======  ================================================================================
  2372            05 WS-XDL-Prog-ID-TXT                  PIC X(15).
  2373            05 FILLER                               PIC X(1).
  2374            05 WS-XDL-Token-TXT                     PIC X(32).
  2375            05 FILLER                               PIC X(1).
  2376            05 WS-XDL-Def-Line-NUM                  PIC ZZZZZ9.
  2377            05 FILLER                               PIC X(1).
  2378            05 WS-XDL-Section-TXT                   PIC X(15).
  2379            05 FILLER                               PIC X(1).
  2380            05 WS-XDL-Reference-TXT                 OCCURS 8 TIMES.
  2381               10 WS-XDL-Ref-Line-NUM               PIC ZZZZZ9.
  2382               10 WS-XDL-Ref-Flag-CHR               PIC X(1).
  2383               10 FILLER                            PIC X(1).
  2384
  2385 GC1213 01  WS-Xref-Lines-Per-Rec-NUM               PIC 9(1).
  2386
  2387         LINKAGE SECTION.
  2388 GC0712 01  L-Listing-Fn-TXT                        PIC X(256).
  2389
  2390        01  L-Src-Fn-TXT                            PIC X(256).
  2391
  2392 GC0712 01  L-OS-Type-CD                            PIC 9(1).
  2393
  2394 GC1213 01  L-LPP-NUM                               USAGE BINARY-LONG.
  2395
  2396 GC1213 01  L-LPP-Port-NUM                          USAGE BINARY-LONG.
  2397
  2398 GC1213 01  L-Listing-CD                            PIC 9(1).
```

```
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```
GNUCOBOL 2.2 20JUL2017  Source Listing                              2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                    Page: 55
====== =====================================================================================

 2400 GC0712 PROCEDURE DIVISION USING L-Listing-Fn-TXT
 2401 GC0712                          L-Src-Fn-TXT
 2402 GC0712                          L-OS-Type-CD
 2403 GC1213                          L-LPP-NUM
 2404 GC1213                          L-LPP-Port-NUM
 2405 GC1213                          L-Listing-CD.
 2406        000-Main SECTION.
 2407            PERFORM 100-Initialization
 2408 GC0712    OPEN OUTPUT F-Listing-FILE
 2409 GC0712    PERFORM 500-Produce-Source-Listing
 2410 GC0712    SORT F-Sort-Work-FILE
 2411 GC0712        ASCENDING KEY    F-SW-Prog-ID-TXT
 2412 GC0712                         F-SW-Token-Uc-TXT
 2413 GC0712                         F-SW-Ref-Line-NUM
 2414 GC0712        INPUT PROCEDURE  300-Tokenize-Source
 2415 GC0712        OUTPUT PROCEDURE 400-Produce-Xref-Listing
 2416 GC0712    CLOSE F-Listing-FILE
 2417            GOBACK
 2418            .
```

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```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                    2017/07/22
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 56
====== =================================================================================

  2420        *>**********************************************************
  2421        *> Perform all program-wide initialization operations          **
  2422        *>**********************************************************
  2423         100-Initialization SECTION.
  2424 GC1213     MOVE 0 TO WS-Page-NUM
  2425 GC1213     MOVE 'N' TO WS-Suppress-FF-CHR
  2426 GC1213     MOVE SPACES TO WS-Copyright-TXT
  2427 GC1213     STRING 'GCic for '                 DELIMITED SIZE
  2428 GC1213            WS-OS-Type-TXT(L-OS-Type-CD) DELIMITED SPACE
  2429 GC1213            ' Copyright (C) 2009-2017, Gary L. Cutler, GPL'
  2430 GC1213                                        DELIMITED SIZE
  2431 GC1213            INTO WS-Copyright-TXT
  2432 GC1213     MOVE 'GNUCOBOL 2.2 20JUL2017' TO WS-Version-TXT
  2433            MOVE TRIM(L-Src-Fn-TXT,Leading) TO L-Src-Fn-TXT
  2434 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
  2435 GC1010            UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/' OR '\'
  2436 GC1010                OR WS-I-SUB = 0
  2437 GC1010     END-PERFORM
  2438 GC1010     IF WS-I-SUB = 0
  2439 GC1010        MOVE UPPER-CASE(L-Src-Fn-TXT) TO WS-Main-Module-Name-TXT *> No directory d
          elimiter, whole thing is filename
  2440 GC1010     ELSE
  2441 GC1010        ADD 1 TO WS-I-SUB
  2442 GC1010        MOVE UPPER-CASE(L-Src-Fn-TXT(WS-I-SUB:))
  2443 GC1010          TO WS-Main-Module-Name-TXT *> Extract filename
  2444 GC1010     END-IF
  2445 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  2446 GC1213        MOVE 8 TO WS-Xref-Lines-Per-Rec-NUM
  2447 GC1213        ACCEPT WS-Lines-Per-Page-Env-TXT
  2448 GC1213           FROM ENVIRONMENT 'GCXREF_LINES'
  2449 GC1213     ELSE *> PORTRAIT
  2450 GC1213        MOVE 3 TO WS-Xref-Lines-Per-Rec-NUM
  2451 GC1213        ACCEPT WS-Lines-Per-Page-Env-TXT
  2452 GC1213           FROM ENVIRONMENT 'GCXREF_LINES_PORT'
  2453 GC1213     END-IF
  2454            INSPECT L-Src-Fn-TXT REPLACING ALL '\' BY '/'
  2455            MOVE L-Src-Fn-TXT TO WS-Program-Path-TXT
  2456            CALL 'C$JUSTIFY' USING WS-Program-Path-TXT, 'Right'
  2457            MOVE LENGTH(TRIM(L-Src-Fn-TXT,Trailing)) TO WS-I-SUB
  2458            MOVE 0 TO WS-J-SUB
  2459            PERFORM UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/'
  2460                    OR WS-I-SUB = 0
  2461               SUBTRACT 1 FROM WS-I-SUB
  2462               ADD      1 TO   WS-J-SUB
  2463            END-PERFORM
  2464            UNSTRING L-Src-Fn-TXT((WS-I-SUB + 1):WS-J-SUB)
  2465               DELIMITED BY '.'
  2466               INTO WS-Filename-TXT
  2467                    WS-Dummy-TXT
  2468 GC1010     STRING
  2469 GC1010            TRIM(WS-Filename-TXT,Trailing)

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====== ==
  2470 GC1010   '.i'
  2471 GC1010   DELIMITED SIZE
  2472 GC1010   INTO WS-Expanded-Src-Fn-TXT
  2473 GC1010   CALL 'CBL_CHECK_FILE_EXIST' USING WS-Expanded-Src-Fn-TXT
  2474 GC1010   WS-Temp-256-Chars-TXT
  2475 GC1010   IF RETURN-CODE NOT = 0
  2476 GC1010   GOBACK
  2477 GC1010   END-IF
  2478   IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
  2479   MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
  2480   TO WS-Lines-Per-Page-NUM
  2481   ELSE
  2482 GC1213   IF L-LISTING-CD = 1 *> LANDSCAPE
  2483 GC1213   MOVE L-LPP-NUM TO WS-Lines-Per-Page-NUM
  2484 GC1213   ELSE   *> PORTRAIT
  2485 GC1213   MOVE L-LPP-Port-NUM TO WS-Lines-Per-Page-NUM
  2486 GC1213   END-IF
  2487   END-IF
  2488 GC1213   SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *> FOR PAGE FOOTER
  2489   ACCEPT WS-Today-DT FROM DATE YYYYMMDD
  2490 GC1213   MOVE WS-Today-DT TO WS-Formatted-DT
  2491   MOVE '????????????...' TO WS-Curr-Prog-ID-TXT
  2492   MOVE SPACES   TO WS-Curr-Verb-TXT
  2493   WS-Held-Reference-TXT
  2494   .

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```
 2496        300-Tokenize-Source SECTION.
 2497            OPEN INPUT F-Expanded-Src-FILE
 2498            MOVE SPACES TO F-Expanded-Src-REC
 2499            MOVE 256 TO WS-Src-SUB
 2500            MOVE 0 TO WS-Usernames-QTY
 2501                      WS-Curr-Line-NUM
 2502            MOVE '?' TO WS-Curr-Division-TXT
 2503 GC0710     MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
 2504            PERFORM FOREVER
 2505                PERFORM 310-Get-Token
 2506                IF WS-TT-Token-Is-EOF-BOOL
 2507                    EXIT PERFORM
 2508                END-IF
 2509                MOVE UPPER-CASE(WS-Token-Curr-TXT)
 2510                  TO WS-Token-Curr-Uc-TXT
 2511 GC1010       IF WS-TT-Token-Is-Keyword-BOOL
 2512 GC1010       OR WS-TT-Token-Is-Reserved-Wd-BOOL
 2513 GC1010           MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Curr-TXT
 2514 GC1010       END-IF
 2515                IF WS-TT-Token-Is-Verb-BOOL
 2516                    MOVE WS-Token-Curr-Uc-TXT TO WS-Curr-Verb-TXT
 2517                                              WS-Token-Prev-TXT
 2518                    IF WS-Held-Reference-TXT NOT = SPACES
 2519                        MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 2520                        MOVE SPACES         TO WS-Held-Reference-TXT
 2521                        RELEASE F-Sort-Work-REC
 2522                    END-IF
 2523                END-IF
 2524                EVALUATE TRUE
 2525                WHEN WS-CD-In-IDENT-DIV-BOOL
 2526                    PERFORM 320-IDENTIFICATION-DIVISION
 2527                WHEN WS-CD-In-ENV-DIV-BOOL
 2528                    PERFORM 330-ENVIRONMENT-DIVISION
 2529                WHEN WS-CD-In-DATA-DIV-BOOL
 2530                    PERFORM 340-DATA-DIVISION
 2531                WHEN WS-CD-In-PROC-DIV-BOOL
 2532                    PERFORM 350-PROCEDURE-DIVISION
 2533                END-EVALUATE
 2534                IF WS-TT-Token-Is-Keyword-BOOL
 2535                    MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Prev-TXT
 2536                END-IF
 2537                IF WS-RS-Token-Ended-Sentence-CHR = 'Y'
 2538                AND WS-Curr-Division-TXT NOT = 'I'
 2539                    MOVE SPACES TO WS-Token-Prev-TXT
 2540                                   WS-Curr-Verb-TXT
 2541                END-IF
 2542
 2543            END-PERFORM
 2544            CLOSE F-Expanded-Src-FILE
 2545            .
```

```
   2547        310-Get-Token SECTION.
   2548      *>-- Position to 1st non-blank character
   2549           MOVE WS-RS-Token-Ended-Sentence-CHR
   2550             TO WS-RS-Last-Token-Ended-Sent-CHR
   2551           MOVE 'N' TO WS-RS-Token-Ended-Sentence-CHR
   2552           PERFORM UNTIL F-Expanded-Src-REC(WS-Src-SUB : 1) NOT = SPACE
   2553               IF WS-Src-SUB > 255
   2554                   READ F-Expanded-Src-FILE AT END
   2555                       IF WS-Held-Reference-TXT NOT = SPACES
   2556                           MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
   2557                           MOVE SPACES        TO WS-Held-Reference-TXT
   2558                           RELEASE F-Sort-Work-REC
   2559                       END-IF
   2560                       SET WS-TT-Token-Is-EOF-BOOL TO TRUE
   2561                       MOVE 0 TO WS-Curr-Line-NUM
   2562                       EXIT SECTION
   2563                   END-READ
   2564 GC0712            IF F-ES-1-7-TXT NOT = '#DEFLIT'
   2565 GC0712                IF F-ES-1-CHR = '#'
   2566 GC0712                    PERFORM 311-Control-Record
   2567 GC0712                ELSE
   2568 GC0712                    PERFORM 312-Expanded-Src-Record
   2569 GC0712                END-IF
   2570 GC0712            END-IF
   2571               ELSE
   2572                   ADD 1 TO WS-Src-SUB
   2573               END-IF
   2574           END-PERFORM
   2575      *>-- Extract token string
   2576           MOVE F-Expanded-Src-REC(WS-Src-SUB : 1)
   2577             TO WS-Curr-CHR
   2578           MOVE F-Expanded-Src-REC(WS-Src-SUB + 1: 1)
   2579             TO WS-Next-CHR
   2580           IF WS-Curr-CHR = '.'
   2581               ADD 1 TO WS-Src-SUB
   2582               MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
   2583               MOVE SPACE TO WS-Token-Type-CD
   2584               MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
   2585               EXIT SECTION
   2586           END-IF
   2587           IF WS-Curr-Char-Is-Punct-BOOL
   2588           AND WS-Curr-CHR = '='
   2589           AND WS-Curr-Division-TXT = 'P'
   2590               ADD 1 TO WS-Src-SUB
   2591               MOVE 'EQUALS' TO WS-Token-Curr-TXT
   2592               MOVE 'K'      TO WS-Token-Type-CD
   2593               EXIT SECTION
   2594           END-IF
   2595           IF WS-Curr-Char-Is-Punct-BOOL *> So subscripts don't get flagged w/ '*'
   2596           AND WS-Curr-CHR = '('
   2597           AND WS-Curr-Division-TXT = 'P'
   2598               MOVE SPACES TO WS-Token-Prev-TXT
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```
 2599          END-IF
 2600          IF WS-Curr-Char-Is-Punct-BOOL
 2601              ADD 1 TO WS-Src-SUB
 2602              MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
 2603              MOVE SPACE TO WS-Token-Type-CD
 2604              EXIT SECTION
 2605          END-IF
 2606          IF WS-Curr-Char-Is-Quote-BOOL
 2607              ADD 1 TO WS-Src-SUB
 2608              UNSTRING F-Expanded-Src-REC
 2609                  DELIMITED BY WS-Curr-CHR
 2610                  INTO WS-Token-Curr-TXT
 2611                  WITH POINTER WS-Src-SUB
 2612              IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2613                  MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2614                  ADD 1 TO WS-Src-SUB
 2615              END-IF
 2616              SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
 2617              EXIT SECTION
 2618          END-IF
 2619          IF WS-Curr-Char-Is-X-BOOL AND WS-Next-Char-Is-Quote-BOOL
 2620              ADD 2 TO WS-Src-SUB
 2621              UNSTRING F-Expanded-Src-REC
 2622                  DELIMITED BY WS-Next-CHR
 2623                  INTO WS-Token-Curr-TXT
 2624                  WITH POINTER WS-Src-SUB
 2625              IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2626                  MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2627                  ADD 1 TO WS-Src-SUB
 2628              END-IF
 2629              SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2630              EXIT SECTION
 2631          END-IF
 2632          IF WS-Curr-Char-Is-Z-BOOL AND WS-Next-Char-Is-Quote-BOOL
 2633              ADD 2 TO WS-Src-SUB
 2634              UNSTRING F-Expanded-Src-REC
 2635                  DELIMITED BY WS-Next-CHR
 2636                  INTO WS-Token-Curr-TXT
 2637                  WITH POINTER WS-Src-SUB
 2638              IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2639                  MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2640                  ADD 1 TO WS-Src-SUB
 2641              END-IF
 2642              SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
 2643              EXIT SECTION
 2644          END-IF
 2645          IF WS-RS-Processing-PICTURE-CHR = 'Y'
 2646              UNSTRING F-Expanded-Src-REC
 2647                  DELIMITED BY '. ' OR ' '
 2648                  INTO WS-Token-Curr-TXT
 2649                  DELIMITER IN WS-Delim-TXT
 2650                  WITH POINTER WS-Src-SUB
 2651              IF WS-Delim-TXT = '. '
```

==

====== ===
```
  2652                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
  2653                    ADD 1 TO WS-Src-SUB
  2654                END-IF
  2655                IF UPPER-CASE(WS-Token-Curr-TXT) = 'IS'
  2656                    MOVE SPACE TO WS-Token-Type-CD
  2657                    EXIT SECTION
  2658                ELSE
  2659                    MOVE 'N' TO WS-RS-Processing-PICTURE-CHR
  2660                    MOVE SPACE TO WS-Token-Type-CD
  2661                    EXIT SECTION
  2662                END-IF
  2663            END-IF
  2664            UNSTRING F-Expanded-Src-REC
  2665                DELIMITED BY '. ' OR ' ' OR '=' OR '(' OR ')' OR '*'
  2666                                OR '/' OR '&' OR ';' OR ',' OR '<'
  2667                                OR '>' OR ':'
  2668                INTO WS-Token-Curr-TXT
  2669                DELIMITER IN WS-Delim-TXT
  2670                WITH POINTER WS-Src-SUB
  2671            IF WS-Delim-TXT = '. '
  2672                MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
  2673            END-IF
  2674            IF WS-Delim-TXT NOT = '. ' AND ' '
  2675                SUBTRACT 1 FROM WS-Src-SUB
  2676            END-IF
  2677      *>-- Classify Token
  2678            MOVE UPPER-CASE(WS-Token-Curr-TXT) TO WS-Token-Search-TXT
  2679            IF WS-Token-Search-TXT = 'EQUAL' OR 'EQUALS'
  2680                MOVE 'EQUALS' TO WS-Token-Curr-TXT
  2681                MOVE 'K'      TO WS-Token-Type-CD
  2682                EXIT SECTION
  2683            END-IF
  2684            SEARCH ALL WS-Reserved-Word-TXT
  2685                WHEN WS-RW-Word-TXT (WS-RW-IDX) = WS-Token-Search-TXT
  2686                    MOVE WS-RW-Type-CD (WS-RW-IDX) TO WS-Token-Type-CD
  2687 GC0710             IF WS-TT-Token-Is-Verb-BOOL
  2688 GC0710                 MOVE 'Y' TO WS-RS-Verb-Has-Been-Found-CHR
  2689 GC0710             END-IF
  2690                    EXIT SECTION
  2691            END-SEARCH
  2692      *>-- Not a reserved word, must be a user name
  2693            SET WS-TT-Token-Is-Identifier-BOOL TO TRUE
  2694            PERFORM 313-Check-For-Numeric-Token
  2695            IF WS-TT-Token-Is-Lit-Number-BOOL
  2696                IF  (WS-RS-Last-Token-Ended-Sent-CHR = 'Y')
  2697                AND (WS-Curr-Division-TXT = 'D')
  2698                    MOVE 'LEVEL #' TO WS-Token-Curr-TXT
  2699                    MOVE 'K'       TO WS-Token-Type-CD
  2700                    EXIT SECTION
  2701                ELSE
  2702                    EXIT SECTION
  2703                END-IF
  2704            END-IF
```
===

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 62
====== =========================================================================
  2705               .
```

```
 2707         311-Control-Record SECTION.
 2708             UNSTRING F-ES-2-256-TXT-256
 2709                 DELIMITED BY '"'
 2710                 INTO WS-Temp-10-Chars-TXT
 2711                     WS-Temp-256-Chars-TXT
 2712                     WS-Dummy-TXT
 2713             INSPECT WS-Temp-10-Chars-TXT REPLACING ALL '"' BY SPACE
 2714 GC0712     IF WS-Temp-10-Chars-TXT(1:4) = 'line'
 2715 GC0712         MOVE SPACES TO WS-Temp-10-Chars-TXT(1:4)
 2716 GC0712     END-IF
 2717             COMPUTE WS-I-SUB = NUMVAL(WS-Temp-10-Chars-TXT) - 1
 2718 GC1010     IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
 2719 GC1010        TRIM(WS-Main-Module-Name-TXT)
 2720                MOVE WS-I-SUB TO WS-Curr-Line-NUM
 2721                SET WS-RS-In-Main-Module-BOOL TO TRUE
 2722                IF WS-Saved-Section-TXT NOT = SPACES
 2723                    MOVE WS-Saved-Section-TXT TO WS-Curr-Section-TXT
 2724                END-IF
 2725             ELSE
 2726                SET WS-RS-In-Copybook-BOOL TO TRUE
 2727                IF WS-Saved-Section-TXT = SPACES
 2728                    MOVE WS-Curr-Section-TXT TO WS-Saved-Section-TXT
 2729                END-IF
 2730                MOVE LENGTH(TRIM(WS-Temp-256-Chars-TXT,Trailing))
 2731                  TO WS-I-SUB
 2732                MOVE 0 TO WS-J-SUB
 2733                PERFORM UNTIL WS-Temp-256-Chars-TXT(WS-I-SUB:1) = '/'
 2734                       OR WS-I-SUB = 0
 2735                    SUBTRACT 1 FROM WS-I-SUB
 2736                    ADD     1 TO   WS-J-SUB
 2737                END-PERFORM
 2738                UNSTRING WS-Temp-256-Chars-TXT((WS-I-SUB + 1):WS-J-SUB)
 2739                    DELIMITED BY '.'
 2740                    INTO WS-Filename-TXT
 2741                        WS-Dummy-TXT
 2742                MOVE '['     TO WS-CS-1-CHR
 2743                MOVE WS-Filename-TXT TO WS-CS-2-14-TXT
 2744                IF WS-CS-11-14-TXT NOT = SPACES
 2745                    MOVE '...' TO WS-CS-11-14-TXT
 2746                END-IF
 2747                MOVE ']'     TO WS-CS-15-CHR
 2748             END-IF
 2749             MOVE SPACES TO F-Expanded-Src-REC *> Force another READ
 2750             MOVE 256    TO WS-Src-SUB
 2751                .
```

====== ===

```
 2753        312-Expanded-Src-Record SECTION.
 2754 GC0314     IF F-Expanded-Src-REC(1:1) = SPACE
 2755 GC0314         MOVE 2 TO WS-Src-SUB
 2756 GC0314     ELSE
 2757 GC0314         MOVE 1 TO WS-Src-SUB
 2758 GC0314     END-IF
 2759            IF WS-RS-In-Main-Module-BOOL
 2760                ADD 1 To WS-Curr-Line-NUM
 2761            END-IF
 2762            .
```

==

```
 2764        313-Check-For-Numeric-Token SECTION.
 2765            MOVE WS-Token-Curr-TXT TO WS-Temp-32-Chars-1-TXT
 2766            INSPECT WS-Temp-32-Chars-1-TXT
 2767 GC0711        CONVERTING '0123456789' TO SPACES
 2768 GC0711    IF WS-Temp-32-Chars-1-TXT = SPACES                        *> Simple Unsigned Int
      eger
 2769                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2770                EXIT SECTION
 2771            END-IF
 2772 GC0711    MOVE SPACES TO WS-Temp-32-Chars-2-TXT
 2773 GC0711                  WS-Temp-32-Chars-3-TXT
 2774 GC0711                  WS-Dummy-TXT
 2775 GC0711    UNSTRING WS-Temp-32-Chars-1-TXT
 2776 GC0711        DELIMITED BY 'e' OR 'E'
 2777 GC0711        INTO WS-Temp-32-Chars-2-TXT
 2778 GC0711             WS-Temp-32-Chars-3-TXT
 2779 GC0711             WS-Dummy-TXT
 2780 GC0711    IF WS-Dummy-TXT NOT = SPACES                          *> More than one 'E' - Not Num
      eric
 2781 GC0711        EXIT SECTION
 2782 GC0711    END-IF
 2783 GC0711    IF WS-Temp-32-Chars-2-TXT(1:1) = '+' OR '-'
 2784 GC0711        MOVE SPACE TO WS-Temp-32-Chars-2-TXT(1:1)
 2785 GC0711    END-IF
 2786 GC0711    IF WS-Temp-32-Chars-3-TXT(1:1) = '+' OR '-'
 2787 GC0711        MOVE SPACE TO WS-Temp-32-Chars-3-TXT(1:1)
 2788 GC0711    END-IF
 2789            MOVE 0 TO WS-Tally-QTY
 2790 GC0711    INSPECT WS-Temp-32-Chars-2-TXT
 2791                TALLYING WS-Tally-QTY FOR ALL '.'
 2792            IF WS-Tally-QTY = 1
 2793 GC0711        INSPECT WS-Temp-32-Chars-2-TXT REPLACING ALL '.' BY SPACE
 2794            END-IF
 2795 GC0711    INSPECT WS-Temp-32-Chars-3-TXT
 2796 GC0711        TALLYING WS-Tally-QTY FOR ALL '.'
 2797 GC0711    IF WS-Tally-QTY = 1
 2798 GC0711        INSPECT WS-Temp-32-Chars-3-TXT REPLACING ALL '.' BY SPACE
 2799 GC0711    END-IF
 2800 GC0711    IF WS-Temp-32-Chars-2-TXT = SPACES AND WS-Temp-32-Chars-3-TXT = SPACES
 2801                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2802                EXIT SECTION
 2803            END-IF
 2804            .
```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                      2017/07/22
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 66
======  ==========================================================================================

  2806        320-IDENTIFICATION-DIVISION SECTION.
  2807 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
  2808 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
  2809 GC0712     END-IF
  2810 GC0710     MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
  2811            IF WS-TT-Token-Is-Keyword-BOOL
  2812            AND WS-Token-Curr-TXT = 'DIVISION'
  2813                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2814                EXIT SECTION
  2815            END-IF
  2816 GC0712     IF WS-Token-Prev-TXT = 'PROGRAM-ID' OR 'FUNCTION-ID'
  2817                MOVE SPACES TO WS-Token-Prev-TXT
  2818                MOVE WS-Token-Curr-TXT TO WS-Curr-Prog-ID-TXT
  2819 GC0712         IF WS-CPI-16-CHR NOT = SPACES
  2820                    MOVE '...' TO WS-CPI-13-15-TXT
  2821                END-IF
  2822                EXIT SECTION
  2823            END-IF
  2824            .
```

```
==================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2017, Gary L. Cutler, GPL                  Page: 66
```

```
  2826        330-ENVIRONMENT-DIVISION SECTION.
  2827 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
  2828 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
  2829 GC0712     END-IF
  2830            IF WS-TT-Token-Is-Keyword-BOOL
  2831            AND WS-Token-Curr-TXT = 'DIVISION'
  2832                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2833                EXIT SECTION
  2834            END-IF
  2835            IF WS-TT-Token-Is-Keyword-BOOL
  2836            AND WS-Token-Curr-TXT = 'SECTION'
  2837                MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
  2838                EXIT SECTION
  2839            END-IF
  2840            IF WS-TT-Token-Is-Identifier-BOOL
  2841 GC0712         IF WS-Token-Prev-TXT = 'FUNCTION'
  2842 GC0712             PERFORM 360-Release-Def
  2843 GC0712         ELSE
  2844 GC0712             PERFORM 361-Release-Ref
  2845 GC0712         END-IF
  2846            END-IF
  2847 GC1213     IF WS-TT-Token-Is-Function-BOOL
  2848 GC1213         PERFORM 361-Release-Ref
  2849 GC1213     END-IF
  2850            .
```

```
 2852         340-DATA-DIVISION SECTION.
 2853 GC0712    IF WS-TT-Token-Is-Argtype-BOOL
 2854 GC0712        SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
 2855 GC0712    END-IF
 2856           IF WS-TT-Token-Is-Keyword-BOOL
 2857           AND WS-Token-Curr-TXT = 'DIVISION'
 2858              MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
 2859              EXIT SECTION
 2860           END-IF
 2861           IF WS-TT-Token-Is-Keyword-BOOL
 2862           AND WS-Token-Curr-TXT = 'SECTION'
 2863              MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
 2864              EXIT SECTION
 2865           END-IF
 2866           IF  (WS-Token-Curr-TXT = 'PIC' OR 'PICTURE')
 2867           AND (WS-TT-Token-Is-Keyword-BOOL)
 2868              MOVE 'Y' TO WS-RS-Processing-PICTURE-CHR
 2869              EXIT SECTION
 2870           END-IF
 2871 GC0710    IF WS-TT-Token-Is-Reserved-Wd-BOOL
 2872 GC0710    AND WS-Token-Prev-TXT = 'LEVEL #'
 2873 GC0710       MOVE SPACES TO WS-Token-Prev-TXT
 2874 GC0710       EXIT SECTION
 2875 GC0710    END-IF
 2876           IF WS-TT-Token-Is-Identifier-BOOL
 2877              EVALUATE WS-Token-Prev-TXT
 2878              WHEN 'FD'
 2879                 PERFORM 360-Release-Def
 2880                 MOVE SPACES TO WS-Token-Prev-TXT
 2881 GC1213       WHEN 'RD'
 2882 GC1213          PERFORM 360-Release-Def
 2883 GC1213          MOVE SPACES TO WS-Token-Prev-TXT
 2884              WHEN 'SD'
 2885                 PERFORM 360-Release-Def
 2886                 MOVE SPACES TO WS-Token-Prev-TXT
 2887              WHEN 'LEVEL #'
 2888                 PERFORM 360-Release-Def
 2889                 MOVE SPACES TO WS-Token-Prev-TXT
 2890              WHEN 'INDEXED'
 2891                 PERFORM 360-Release-Def
 2892                 MOVE SPACES TO WS-Token-Prev-TXT
 2893              WHEN 'USING'
 2894                 PERFORM 362-Release-Upd
 2895                 MOVE SPACES TO WS-Token-Prev-TXT
 2896              WHEN 'INTO'
 2897                 PERFORM 362-Release-Upd
 2898                 MOVE SPACES TO WS-Token-Prev-TXT
 2899              WHEN OTHER
 2900 GC1213          IF WS-Token-Curr-TXT NOT = 'SUM'
 2901 GC1213             PERFORM 361-Release-Ref
 2902 GC1213          END-IF
 2903              END-EVALUATE
```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                        2017/07/22
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                               Page: 69
====== =====================================================================================
  2904                EXIT SECTION
  2905            END-IF
  2906            .
```

====== ===

```
  2908         350-PROCEDURE-DIVISION SECTION.
  2909             IF WS-Curr-Section-TXT NOT = 'PROCEDURE'
  2910                 MOVE 'PROCEDURE' TO WS-Curr-Section-TXT
  2911             END-IF
  2912 GC0710     IF WS-Token-Curr-Uc-TXT = 'PROGRAM'
  2913 GC0710     AND WS-Token-Prev-TXT = 'END'
  2914 GC0710         MOVE '?' TO WS-Curr-Division-TXT
  2915 GC0710         EXIT SECTION
  2916 GC0710     END-IF
  2917             IF WS-TT-Token-Is-Keyword-BOOL
  2918             AND WS-Token-Curr-TXT = 'DIVISION'
  2919                 MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2920                 EXIT SECTION
  2921             END-IF
  2922 GC0313     IF WS-TT-Token-Is-Identifier-BOOL
  2923 GC0313     AND WS-Token-Prev-TXT = SPACES
  2924 GC0313     AND WS-Curr-Verb-TXT = SPACES
  2925 GC0313*> ----- Definition of a Paragraph or Section
  2926 GC0313         PERFORM 360-Release-Def
  2927 GC0313         MOVE SPACES TO WS-Token-Prev-TXT
  2928 GC0313         EXIT SECTION
  2929 GC0313     END-IF
  2930             IF NOT WS-TT-Token-Is-Identifier-BOOL
  2931                 EXIT SECTION
  2932             END-IF
  2933             EVALUATE WS-Curr-Verb-TXT
  2934             WHEN 'ACCEPT'
  2935                 PERFORM 351-ACCEPT
  2936             WHEN 'ADD'
  2937                 PERFORM 351-ADD
  2938             WHEN 'ALLOCATE'
  2939                 PERFORM 351-ALLOCATE
  2940             WHEN 'CALL'
  2941                 PERFORM 351-CALL
  2942             WHEN 'COMPUTE'
  2943                 PERFORM 351-COMPUTE
  2944             WHEN 'DIVIDE'
  2945                 PERFORM 351-DIVIDE
  2946             WHEN 'FREE'
  2947                 PERFORM 351-FREE
  2948 GC1213     WHEN 'GENERATE'
  2949 GC1213         PERFORM 351-GENERATE
  2950             WHEN 'INITIALIZE'
  2951                 PERFORM 351-INITIALIZE
  2952 GC1213     WHEN 'INITIATE'
  2953 GC1213         PERFORM 351-GENERATE
  2954             WHEN 'INSPECT'
  2955                 PERFORM 351-INSPECT
  2956             WHEN 'MOVE'
  2957                 PERFORM 351-MOVE
  2958             WHEN 'MULTIPLY'
  2959                 PERFORM 351-MULTIPLY
```

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Line   Statement   Page: 71
====== ===
```
  2960          WHEN 'PERFORM'
  2961              PERFORM 351-PERFORM
  2962          WHEN 'SET'
  2963              PERFORM 351-SET
  2964          WHEN 'STRING'
  2965              PERFORM 351-STRING
  2966          WHEN 'SUBTRACT'
  2967              PERFORM 351-SUBTRACT
  2968 GC1213   WHEN 'TERMINATE'
  2969 GC1213       PERFORM 351-GENERATE
  2970          WHEN 'TRANSFORM'
  2971              PERFORM 351-TRANSFORM
  2972          WHEN 'UNSTRING'
  2973              PERFORM 351-UNSTRING
  2974          WHEN OTHER
  2975              PERFORM 361-Release-Ref
  2976          END-EVALUATE
  2977              .
```

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Line   Statement   Page: 72
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```
 2979        351-ACCEPT SECTION.
 2980            EVALUATE WS-Token-Prev-TXT
 2981            WHEN 'ACCEPT'
 2982                PERFORM 362-Release-Upd
 2983                MOVE SPACES TO WS-Token-Prev-TXT
 2984            WHEN OTHER
 2985                PERFORM 361-Release-Ref
 2986            END-EVALUATE
 2987                .
 2988
 2989        351-ADD SECTION.
 2990            EVALUATE WS-Token-Prev-TXT
 2991            WHEN 'GIVING'
 2992                PERFORM 362-Release-Upd
 2993            WHEN 'TO'
 2994                PERFORM 362-Release-Upd
 2995            WHEN OTHER
 2996                PERFORM 361-Release-Ref
 2997            END-EVALUATE
 2998                .
 2999
 3000        351-ALLOCATE SECTION.
 3001            EVALUATE WS-Token-Prev-TXT
 3002            WHEN 'ALLOCATE'
 3003                PERFORM 362-Release-Upd
 3004                MOVE SPACES TO WS-Token-Prev-TXT
 3005            WHEN 'RETURNING'
 3006                PERFORM 362-Release-Upd
 3007            WHEN OTHER
 3008                PERFORM 361-Release-Ref
 3009            END-EVALUATE
 3010                .
 3011
 3012        351-CALL SECTION.
 3013            EVALUATE WS-Token-Prev-TXT
 3014            WHEN 'RETURNING'
 3015                PERFORM 362-Release-Upd
 3016            WHEN 'GIVING'
 3017                PERFORM 362-Release-Upd
 3018            WHEN OTHER
 3019 GC1213         PERFORM 365-Release-Arg
 3020            END-EVALUATE
 3021                .
 3022
 3023        351-COMPUTE SECTION.
 3024            EVALUATE WS-Token-Prev-TXT
 3025            WHEN 'COMPUTE'
 3026                PERFORM 362-Release-Upd
 3027            WHEN OTHER
 3028                PERFORM 361-Release-Ref
 3029            END-EVALUATE
 3030                .
```

===

```
====== ====================================================================================
  3031
  3032        351-DIVIDE SECTION.
  3033            EVALUATE WS-Token-Prev-TXT
  3034            WHEN 'INTO'
  3035                PERFORM 363-Set-Upd
  3036                MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
  3037            WHEN 'GIVING'
  3038                IF WS-Held-Reference-TXT NOT = SPACES
  3039                    MOVE WS-Held-Reference-TXT To F-Sort-Work-REC
  3040                    MOVE SPACES         To WS-Held-Reference-TXT
  3041                                           F-SW-Ref-Flag-CHR
  3042                    RELEASE F-Sort-Work-REC
  3043                END-IF
  3044                PERFORM 362-Release-Upd
  3045            WHEN 'REMAINDER'
  3046                PERFORM 362-Release-Upd
  3047            WHEN OTHER
  3048                PERFORM 361-Release-Ref
  3049            END-EVALUATE
  3050            .
  3051
  3052        351-FREE SECTION.
  3053            PERFORM 362-Release-Upd
  3054            .
  3055
  3056 GC1213 351-GENERATE SECTION.
  3057 GC1213     PERFORM 362-Release-Upd
  3058 GC1213     .
  3059
  3060        351-INITIALIZE SECTION.
  3061            EVALUATE WS-Token-Prev-TXT
  3062            WHEN 'INITIALIZE'
  3063                PERFORM 362-Release-Upd
  3064            WHEN 'REPLACING'
  3065                PERFORM 361-Release-Ref
  3066            END-EVALUATE
  3067            .
  3068
  3069 GC1213 351-INITIATE SECTION.
  3070 GC1213     PERFORM 362-Release-Upd
  3071 GC1213     .
  3072
  3073        351-INSPECT SECTION.
  3074            EVALUATE WS-Token-Prev-TXT
  3075            WHEN 'INSPECT'
  3076                PERFORM 364-Set-Ref
  3077                MOVE SPACES TO WS-Held-Reference-TXT
  3078                MOVE SPACES TO WS-Token-Prev-TXT
  3079            WHEN 'TALLYING'
  3080                PERFORM 362-Release-Upd
  3081                MOVE SPACES TO WS-Token-Prev-TXT
  3082            WHEN 'REPLACING'
  3083                IF WS-Held-Reference-TXT NOT = SPACES
```

```
====== ==================================================================================
 3084                    MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3085                    MOVE SPACES        TO WS-Held-Reference-TXT
 3086                    MOVE '*'           TO F-SW-Ref-Flag-CHR
 3087                    RELEASE F-Sort-Work-REC
 3088                END-IF
 3089                MOVE SPACES TO WS-Token-Prev-TXT
 3090            WHEN 'CONVERTING'
 3091                IF WS-Held-Reference-TXT NOT = SPACES
 3092                    MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3093                    MOVE SPACES        TO WS-Held-Reference-TXT
 3094                    MOVE '*'           TO F-SW-Ref-Flag-CHR
 3095                    RELEASE F-Sort-Work-REC
 3096                END-IF
 3097                MOVE SPACES TO WS-Token-Prev-TXT
 3098            WHEN OTHER
 3099                PERFORM 361-Release-Ref
 3100            END-EVALUATE
 3101            .
 3102
 3103        351-MOVE SECTION.
 3104            EVALUATE WS-Token-Prev-TXT
 3105            WHEN 'TO'
 3106                PERFORM 362-Release-Upd
 3107            WHEN OTHER
 3108                PERFORM 361-Release-Ref
 3109            END-EVALUATE
 3110            .
 3111
 3112        351-MULTIPLY SECTION.
 3113            EVALUATE WS-Token-Prev-TXT
 3114            WHEN 'BY'
 3115                PERFORM 363-Set-Upd
 3116                MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
 3117            WHEN 'GIVING'
 3118                MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3119                MOVE SPACES        TO WS-Held-Reference-TXT
 3120                                      F-SW-Ref-Flag-CHR
 3121                RELEASE F-Sort-Work-REC
 3122                PERFORM 362-Release-Upd
 3123            WHEN OTHER
 3124                PERFORM 361-Release-Ref
 3125            END-EVALUATE
 3126            .
 3127
 3128        351-PERFORM SECTION.
 3129            EVALUATE WS-Token-Prev-TXT
 3130            WHEN 'VARYING'
 3131                PERFORM 362-Release-Upd
 3132                MOVE SPACES TO WS-Token-Prev-TXT
 3133            WHEN 'AFTER'
 3134                PERFORM 362-Release-Upd
 3135                MOVE SPACES TO WS-Token-Prev-TXT
 3136            WHEN OTHER
```

```
====== =================================================================================
 3137                   PERFORM 361-Release-Ref
 3138              END-EVALUATE
 3139              .
 3140
 3141       351-SET SECTION.
 3142           EVALUATE WS-Token-Prev-TXT
 3143           WHEN 'SET'
 3144               PERFORM 362-Release-Upd
 3145           WHEN OTHER
 3146               PERFORM 361-Release-Ref
 3147           END-EVALUATE
 3148           .
 3149
 3150       351-STRING SECTION.
 3151           EVALUATE WS-Token-Prev-TXT
 3152           WHEN 'INTO'
 3153               PERFORM 362-Release-Upd
 3154           WHEN 'POINTER'
 3155               PERFORM 362-Release-Upd
 3156           WHEN OTHER
 3157               PERFORM 361-Release-Ref
 3158           END-EVALUATE
 3159           .
 3160
 3161       351-SUBTRACT SECTION.
 3162           EVALUATE WS-Token-Prev-TXT
 3163           WHEN 'GIVING'
 3164               PERFORM 362-Release-Upd
 3165           WHEN 'FROM'
 3166               PERFORM 362-Release-Upd
 3167           WHEN OTHER
 3168               PERFORM 361-Release-Ref
 3169           END-EVALUATE
 3170           .
 3171
 3172 GC1213 351-TERMINATE SECTION.
 3173 GC1213     PERFORM 362-Release-Upd
 3174 GC1213     .
 3175
 3176       351-TRANSFORM SECTION.
 3177           EVALUATE WS-Token-Prev-TXT
 3178           WHEN 'TRANSFORM'
 3179               PERFORM 362-Release-Upd
 3180               MOVE SPACES TO WS-Token-Prev-TXT
 3181           WHEN OTHER
 3182               PERFORM 361-Release-Ref
 3183           END-EVALUATE
 3184           .
 3185
 3186       351-UNSTRING SECTION.
 3187           EVALUATE WS-Token-Prev-TXT
 3188           WHEN 'INTO'
 3189               PERFORM 362-Release-Upd
```

====== ===
```
 3190          WHEN 'DELIMITER'
 3191              PERFORM 362-Release-Upd
 3192          WHEN 'COUNT'
 3193              PERFORM 362-Release-Upd
 3194          WHEN 'POINTER'
 3195              PERFORM 362-Release-Upd
 3196          WHEN 'TALLYING'
 3197              PERFORM 362-Release-Upd
 3198          WHEN OTHER
 3199              PERFORM 361-Release-Ref
 3200          END-EVALUATE
 3201          .
 3202
 3203      360-Release-Def SECTION.
 3204          MOVE SPACES             TO F-Sort-Work-REC
 3205          MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3206          MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3207          MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3208          MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3209          MOVE WS-Curr-Line-NUM      TO F-SW-Def-Line-NUM
 3210          MOVE 0                     TO F-SW-Ref-Line-NUM
 3211          RELEASE F-Sort-Work-REC
 3212          .
 3213
 3214      361-Release-Ref SECTION.
 3215          PERFORM 364-Set-Ref
 3216          RELEASE F-Sort-Work-REC
 3217          .
 3218
 3219      362-Release-Upd SECTION.
 3220          PERFORM 363-Set-Upd
 3221          RELEASE F-Sort-Work-REC
 3222          .
 3223
 3224      363-Set-Upd SECTION.
 3225          MOVE SPACES             TO F-Sort-Work-REC
 3226          MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3227          MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3228          MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3229          MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3230          MOVE WS-Curr-Line-NUM      TO F-SW-Ref-Line-NUM
 3231          MOVE '*'                   TO F-SW-Ref-Flag-CHR
 3232          .
 3233
 3234      364-Set-Ref SECTION.
 3235          MOVE SPACES             TO F-Sort-Work-REC
 3236          MOVE WS-Curr-Prog-ID-TXT   TO F-SW-Prog-ID-TXT
 3237          MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
 3238          MOVE WS-Token-Curr-TXT     TO F-SW-Token-TXT
 3239          MOVE WS-Curr-Section-TXT   TO F-SW-Section-TXT
 3240          MOVE WS-Curr-Line-NUM      TO F-SW-Ref-Line-NUM
 3241          .
 3242
```
==

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                      2017/07/22
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 77
======  ===============================================================================
  3243 GC1213 365-Release-Arg SECTION.
  3244 GC1213     PERFORM 366-Set-Arg
  3245 GC1213     RELEASE F-Sort-Work-REC
  3246 GC1213     .
  3247
  3248 GC1213 366-Set-Arg SECTION.
  3249 GC1213     MOVE SPACES               TO F-Sort-Work-REC
  3250 GC1213     MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
  3251 GC1213     MOVE WS-Token-Curr-Uc-TXT TO F-SW-Token-Uc-TXT
  3252 GC1213     MOVE WS-Token-Curr-TXT    TO F-SW-Token-TXT
  3253 GC1213     MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
  3254 GC1213     MOVE WS-Curr-Line-NUM     TO F-SW-Ref-Line-NUM
  3255 GC1213     MOVE 'C'                  TO F-SW-Ref-Flag-CHR
  3256 GC1213     .
  3257
```

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

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```
  3259        400-Produce-Xref-Listing SECTION.
  3260            MOVE SPACES       TO WS-Xref-Detail-Line-TXT
  3261                                 WS-Group-Indicators-TXT
  3262            MOVE 0            TO WS-I-SUB
  3263                                 WS-Lines-Left-NUM
  3264 GC0710    MOVE 'N'          TO WS-RS-Duplicate-CHR
  3265            PERFORM FOREVER
  3266                RETURN F-Sort-Work-FILE AT END
  3267 GC1213         IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3268 GC1213             PERFORM 410-Generate-Report-Line
  3269 GC1213         END-IF
  3270 GC1213         MOVE SPACES TO WS-Xref-Detail-Line-TXT
  3271 GC1213         PERFORM 410-Generate-Report-Line
  3272 GC1213             UNTIL WS-Lines-Left-NUM = 0
  3273 GC1213         MOVE 'Y' TO WS-Suppress-FF-CHR
  3274 GC1213         PERFORM 420-Generate-Xref-Footer
  3275                 EXIT PERFORM
  3276            END-RETURN
  3277            IF F-SW-Prog-ID-TXT  NOT = WS-GI-Prog-ID-TXT
  3278            OR F-SW-Token-Uc-TXT NOT = WS-GI-Token-TXT
  3279 GC0710        MOVE 'N' TO WS-RS-Duplicate-CHR
  3280                IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3281                    PERFORM 410-Generate-Report-Line
  3282                END-IF
  3283                IF F-SW-Prog-ID-TXT NOT = WS-GI-Prog-ID-TXT
  3284 GC1213             MOVE SPACES TO WS-Xref-Detail-Line-TXT
  3285 GC1213             PERFORM 410-Generate-Report-Line
  3286 GC1213                 UNTIL WS-Lines-Left-NUM = 0
  3287                END-IF
  3288                MOVE F-SW-Prog-ID-TXT  TO WS-GI-Prog-ID-TXT
  3289                MOVE F-SW-Token-Uc-TXT TO WS-GI-Token-TXT
  3290            END-IF
  3291 GC0710    IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
  3292 GC0710    AND F-SW-Def-Line-NUM NOT = SPACES
  3293 GC0710    AND WS-Xref-Detail-Line-TXT NOT = SPACES
  3294 GC0710        MOVE 'Y' TO WS-RS-Duplicate-CHR
  3295 GC0710        PERFORM 410-Generate-Report-Line
  3296 GC0710        MOVE 0 TO WS-I-SUB
  3297 GC0710        MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3298 GC0710        MOVE '  (Duplicate Definition)' TO WS-XDL-Token-TXT
  3299 GC0710        MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
  3300 GC0710        MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
  3301 GC0710        EXIT PERFORM CYCLE
  3302 GC0710    END-IF
  3303 GC0710    IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
  3304 GC0710    AND F-SW-Def-Line-NUM = SPACES
  3305 GC0710    AND WS-RS-Duplicate-CHR = 'Y'
  3306 GC0710        MOVE 'N' TO WS-RS-Duplicate-CHR
  3307 GC0710        PERFORM 410-Generate-Report-Line
  3308 GC0710        MOVE 0 TO WS-I-SUB
  3309 GC0710        MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3310 GC0710        MOVE '  (Duplicate References)' TO WS-XDL-Token-TXT
```

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```
====== =========================================================================================
  3311 GC0710          END-IF
  3312                 IF WS-Xref-Detail-Line-TXT = SPACES
  3313                     MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3314                     MOVE F-SW-Token-TXT TO WS-XDL-Token-TXT
  3315                     MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
  3316                     IF F-SW-Def-Line-NUM NOT = SPACES
  3317                         MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
  3318                     END-IF
  3319                 END-IF
  3320                 IF F-SW-Reference-TXT > '000000'
  3321                     ADD 1 TO WS-I-SUB
  3322                     IF WS-I-SUB > WS-Xref-Lines-Per-Rec-NUM
  3323                         PERFORM 410-Generate-Report-Line
  3324                         MOVE 1 TO WS-I-SUB
  3325                     END-IF
  3326                     MOVE F-SW-Ref-Line-NUM
  3327                       TO WS-XDL-Ref-Line-NUM (WS-I-SUB)
  3328                     MOVE F-SW-Ref-Flag-CHR
  3329                       TO WS-XDL-Ref-Flag-CHR (WS-I-SUB)
  3330                 END-IF
  3331             END-PERFORM
  3332             IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3333                 PERFORM 410-Generate-Report-Line
  3334             END-IF
  3335                 .
```

====== ===

```
 3337          410-Generate-Report-Line SECTION.
 3338              IF WS-Lines-Left-NUM < 1
 3339 GC1213         PERFORM 420-Generate-Xref-Footer
 3340 GC1213         ADD  1        TO WS-Page-NUM
 3341 GC1213         MOVE 'Page:'    TO WS-PN-Literal-TXT
 3342 GC1213         MOVE WS-Page-NUM TO WS-PN-Page-NUM
 3343 GC1213         CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
 3344 GC1213         CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
 3345 GC1213         IF L-Listing-CD = 1 *> LANDSCAPE
 3346 GC1213            MOVE WS-Version-TXT
 3347 GC1213              TO F-Listing-135-REC
 3348 GC1213            MOVE 'Cross-Reference Listing'
 3349 GC1213              TO F-Listing-135-REC(25:23)
 3350 GC1213            MOVE WS-Formatted-DT
 3351 GC1213              TO F-Listing-135-REC(126:10)
 3352 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
 3353 GC1213            MOVE WS-Program-Path-TXT
 3354 GC1213              TO F-Listing-135-REC
 3355 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
 3356 GC1213            MOVE 'PROGRAM-ID     Identifier/Register/Function' &
 3357 GC1213                 '   Defn   Where Defined   References'
 3358 GC1213              TO F-Listing-135-REC
 3359 GC1213            MOVE WS-Page-No-TXT
 3360 GC1213              TO F-Listing-135-REC(126:10)
 3361 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
 3362 GC1213            MOVE ALL '=' TO F-Listing-135-REC
 3363 GC1213            MOVE SPACE TO F-Listing-135-REC(16:1)
 3364 GC1213                         F-Listing-135-REC(49:1)
 3365 GC1213                         F-Listing-135-REC(56:1)
 3366 GC1213                         F-Listing-135-REC(72:1)
 3367 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
 3368 GC1213         ELSE               *> PORTRAIT
 3369 GC1213            MOVE WS-Version-TXT
 3370 GC1213              TO F-Listing-96-REC
 3371 GC1213            MOVE 'Cross-Reference Listing'
 3372 GC1213              TO F-Listing-96-REC(25:23)
 3373 GC1213            MOVE WS-Formatted-DT
 3374 GC1213              TO F-Listing-96-REC(87:10)
 3375 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
 3376 GC1213            MOVE WS-Program-Path-TXT(40:96)
 3377 GC1213              TO F-Listing-96-REC
 3378 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
 3379 GC1213            MOVE 'PROGRAM-ID     Identifier/Register/Function' &
 3380 GC1213                 '   Defn   Where Defined   References'
 3381 GC1213              TO F-Listing-96-REC
 3382 GC1213            MOVE WS-Page-No-TXT
 3383 GC1213              TO F-Listing-96-REC(87:10)
 3384 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
 3385 GC1213            MOVE ALL '=' TO F-Listing-96-REC
 3386 GC1213            MOVE SPACE TO F-Listing-96-REC(16:1)
 3387 GC1213                         F-Listing-96-REC(49:1)
 3388 GC1213                         F-Listing-96-REC(56:1)
```

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```
  3389 GC1213                         F-Listing-96-REC(72:1)
  3390 GC1213             WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
  3391 GC1213         END-IF
  3392 GC1213         COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
  3393         END-IF
  3394 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  3395 GC1213         WRITE F-Listing-135-REC FROM WS-Xref-Detail-Line-TXT
  3396 GC1213             BEFORE 1
  3397 GC1213     ELSE                *> PORTRAIT
  3398 GC1213         WRITE F-Listing-96-REC FROM WS-Xref-Detail-Line-TXT
  3399 GC1213             BEFORE 1
  3400 GC1213     END-IF
  3401         MOVE SPACES TO WS-Xref-Detail-Line-TXT
  3402         MOVE 0 TO WS-I-SUB
  3403         SUBTRACT 1 FROM WS-Lines-Left-NUM
  3404             .
  3405 GC1213 420-Generate-Xref-Footer SECTION.
  3406 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  3407 GC1213         WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3408 GC1213         MOVE ALL '='
  3409 GC1213           TO F-Listing-135-REC
  3410 GC1213         WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
  3411 GC1213         MOVE WS-Copyright-TXT
  3412 GC1213           TO F-Listing-135-REC
  3413 GC1213         MOVE WS-Page-No-TXT
  3414 GC1213           TO F-Listing-135-REC(126:10)
  3415 GC1213         IF WS-Suppress-FF-CHR = 'Y'
  3416 GC1213             WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #3
  3417 GC1213         ELSE
  3418 GC1213             WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
  3419 GC1213             WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Charac
       ter
  3420 GC1213         END-IF
  3421 GC1213     ELSE                *> PORTRAIT
  3422 GC1213         WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3423 GC1213         MOVE ALL '='
  3424 GC1213           TO F-Listing-96-REC
  3425 GC1213         WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
  3426 GC1213         MOVE WS-Copyright-TXT
  3427 GC1213           TO F-Listing-96-REC
  3428 GC1213         MOVE WS-Page-No-TXT
  3429 GC1213           TO F-Listing-96-REC(87:10)
  3430 GC1213         IF WS-Suppress-FF-CHR = 'Y'
  3431 GC1213             WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #3
  3432 GC1213         ELSE
  3433 GC1213             WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
  3434 GC1213             WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Charact
       er
  3435 GC1213         END-IF
  3436 GC1213     END-IF
  3437 GC1213         .
```

==

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                      2017/07/22
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 82
======  =========================================================================================

  3439          500-Produce-Source-Listing SECTION.
  3440              OPEN INPUT F-Original-Src-FILE
  3441                        F-Expanded-Src-FILE
  3442              MOVE 0 TO WS-Src-Line-NUM
  3443              PERFORM FOREVER
  3444                  READ F-Expanded-Src-FILE AT END
  3445 GC1213              MOVE SPACES TO WS-Src-Detail-Line-TXT
  3446 GC1213              PERFORM 530-Generate-Source-Line
  3447 GC1213                  UNTIL WS-Lines-Left-NUM = 0
  3448                      EXIT PERFORM
  3449                  END-READ
  3450 GC0712          IF F-ES-1-7-TXT NOT = '#DEFLIT'
  3451 GC0712              IF F-ES-1-CHR = '#'
  3452 GC0712                  PERFORM 510-Control-Record
  3453 GC0712              ELSE
  3454 GC0712                  PERFORM 520-Expanded-Src-Record
  3455 GC0712              END-IF
  3456 GC0712          END-IF
  3457              END-PERFORM
  3458              CLOSE F-Original-Src-FILE
  3459                    F-Expanded-Src-FILE
  3460              .
```

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

```
  3462          510-Control-Record SECTION.
  3463              UNSTRING F-ES-2-256-TXT-256
  3464                  DELIMITED BY '"'
  3465                  INTO WS-Temp-10-Chars-TXT
  3466                       WS-Temp-256-Chars-TXT
  3467                       WS-Dummy-TXT
  3468 GC1010       IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
  3469 GC1010          TRIM(WS-Main-Module-Name-TXT) *> Main Pgm
  3470                 SET WS-RS-In-Main-Module-BOOL TO TRUE
  3471                 IF WS-Src-Line-NUM > 0
  3472                     READ F-Expanded-Src-FILE END-READ
  3473                 END-IF
  3474              ELSE *> COPY
  3475                 SET WS-RS-In-Copybook-BOOL TO TRUE
  3476              END-IF
  3477                 .
```

====== ==

```
  3479        520-Expanded-Src-Record SECTION.
  3480             IF WS-RS-In-Main-Module-BOOL
  3481                 ADD 1 To WS-Curr-Line-NUM
  3482 GC0712         READ F-Original-Src-FILE AT END CONTINUE END-READ
  3483                 ADD 1 TO WS-Src-Line-NUM
  3484                 MOVE SPACES TO WS-Src-Detail-Line-TXT
  3485                 MOVE WS-Src-Line-NUM TO WS-SDL-Line-NUM
  3486 GC1213         MOVE F-Original-Src-REC TO WS-SDL-Statement-TXT
  3487 GC0712         MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
  3488 GC0712           TO WS-Temp-65-Chars-TXT
  3489 GC0712         INSPECT WS-Temp-65-Chars-TXT REPLACING ALL '.' BY SPACE
  3490 GC0712         EVALUATE TRUE
  3491 GC0712            WHEN F-OS-7-CHR = '/'
  3492 GC1213               MOVE SPACES TO WS-Src-Detail-Line-TXT
  3493 GC1213               PERFORM 530-Generate-Source-Line
  3494 GC1213                  UNTIL WS-Lines-Left-NUM = 0
  3495 GC0712            WHEN WS-Temp-65-Chars-TXT = "eject"
  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               EXIT SECTION
  3500 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip1"
  3501 GC0712               MOVE SPACES TO WS-Src-Detail-Line-TXT
  3502 GC0712               PERFORM 530-Generate-Source-Line
  3503 GC0712               EXIT SECTION
  3504 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip2"
  3505 GC0712               MOVE SPACES TO WS-Src-Detail-Line-TXT
  3506 GC0712               PERFORM 530-Generate-Source-Line 2 TIMES
  3507 GC0712               EXIT SECTION
  3508 GC0712            WHEN WS-Temp-65-Chars-TXT = "skip3"
  3509 GC0712               MOVE SPACES TO WS-Src-Detail-Line-TXT
  3510 GC0712               PERFORM 530-Generate-Source-Line 3 TIMES
  3511 GC0712               EXIT SECTION
  3512 GC0712         END-EVALUATE
  3513                 PERFORM 530-Generate-Source-Line
  3514             ELSE
  3515                 IF F-Expanded-Src-REC NOT = SPACES
  3516                     MOVE SPACES TO WS-Src-Detail-Line-TXT
  3517 GC1213             MOVE F-Expanded-Src-REC
  3518                       TO WS-SDL-Statement-TXT
  3519 GC0712             MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
  3520 GC0712               TO WS-Temp-65-Chars-TXT
  3521 GC0712             INSPECT WS-Temp-65-Chars-TXT
  3522 GC0712                 REPLACING ALL '.' BY SPACE
  3523 GC0712             EVALUATE TRUE
  3524 GC0712                WHEN WS-Temp-65-Chars-TXT = "eject"
  3525 GC0712                   MOVE 0 TO WS-Lines-Left-NUM
  3526 GC0712                   EXIT SECTION
  3527 GC0712                WHEN WS-Temp-65-Chars-TXT = "skip1"
  3528 GC0712                   MOVE SPACES TO WS-Src-Detail-Line-TXT
  3529 GC0712                   PERFORM 530-Generate-Source-Line
  3530 GC0712                   EXIT SECTION
```

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Line   Statement   Page: 85
====== ==
  3531 GC0712   WHEN WS-Temp-65-Chars-TXT = "skip2"
  3532 GC0712   MOVE SPACES TO WS-Src-Detail-Line-TXT
  3533 GC0712   PERFORM 530-Generate-Source-Line 2 TIMES
  3534 GC0712   EXIT SECTION
  3535 GC0712   WHEN WS-Temp-65-Chars-TXT = "skip3"
  3536 GC0712   MOVE SPACES TO WS-Src-Detail-Line-TXT
  3537 GC0712   PERFORM 530-Generate-Source-Line 3 TIMES
  3538 GC0712   EXIT SECTION
  3539 GC0712   END-EVALUATE
  3540   PERFORM 530-Generate-Source-Line
  3541   END-IF
  3542   END-IF
  3543   .

==

```
  3545         530-Generate-Source-Line SECTION.
  3546 GC1213     MOVE 1 TO WS-Src-Lines-NUM
  3547 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  3548 GC1213         IF WS-SDL-Statement-TXT(129:128) > SPACES
  3549 GC1213             ADD 1 TO WS-Src-Lines-NUM
  3550 GC1213         END-IF
  3551 GC1213     ELSE                *> PORTRAIT
  3552 GC1213         IF WS-SDL-Statement-TXT(90:167) > SPACES
  3553 GC1213             ADD 1 TO WS-Src-Lines-NUM
  3554 GC1213             IF WS-SDL-Statement-TXT(179:78) > SPACES
  3555 GC1213                 ADD 1 TO WS-Src-Lines-NUM
  3556 GC1213             END-IF
  3557 GC1213         END-IF
  3558 GC1213     END-IF
  3559 GC1213     IF WS-Lines-Left-NUM < WS-Src-Lines-NUM
  3560 GC1213         IF WS-Page-Num > 0 *> Don't print footer before page 1
  3561 GC1213             IF L-Listing-CD = 1 *> LANDSCAPE
  3562 GC1213                 IF WS-Src-Lines-NUM = 2
  3563 GC1213                     WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Blank Line
  3564 GC1213                 END-IF
  3565 GC1213                 WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3566 GC1213                 MOVE ALL '='
  3567 GC1213                   TO F-Listing-135-REC
  3568 GC1213                 WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
  3569 GC1213                 MOVE WS-Copyright-TXT
  3570 GC1213                   TO F-Listing-135-REC
  3571 GC1213                 MOVE WS-Page-No-TXT
  3572 GC1213                   TO F-Listing-135-REC(126:10)
  3573 GC1213                 WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
  3574 GC1213                 WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Ch
       aracter
  3575 GC1213             ELSE                    *> PORTRAIT
  3576 GC1213                 EVALUATE WS-Src-Lines-NUM
  3577 GC1213                 WHEN 1 *> Need no extra blank lines
  3578 GC1213                     CONTINUE
  3579 GC1213                 WHEN 2 *> Need 1 extra blank line
  3580 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3581 GC1213                 WHEN 3 *> Need 2 extra blank lines
  3582 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3583 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3584 GC1213                 END-EVALUATE
  3585 GC1213                 WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3586 GC1213                 MOVE ALL '='
  3587 GC1213                   TO F-Listing-96-REC
  3588 GC1213                 WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
  3589 GC1213                 MOVE WS-Copyright-TXT
  3590 GC1213                   TO F-Listing-96-REC
  3591 GC1213                 MOVE WS-Page-No-TXT
  3592 GC1213                   TO F-Listing-96-REC(87:10)
  3593 GC1213                 WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
  3594 GC1213                 WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Cha
       racter
```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                        2017/07/22
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                 Page: 87
====== =================================================================================
  3595 GC1213           END-IF
  3596 GC1213          END-IF
  3597 GC1213          ADD  1           TO WS-Page-NUM
  3598 GC1213          MOVE 'Page:'     TO WS-PN-Literal-TXT
  3599 GC1213          MOVE WS-Page-NUM TO WS-PN-Page-NUM
  3600 GC1213          CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
  3601 GC1213          CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
  3602 GC1213          IF L-Listing-CD = 1 *> LANDSCAPE
  3603 GC1213              MOVE WS-Version-TXT
  3604 GC1213                 TO F-Listing-135-REC
  3605 GC1213              MOVE 'Source Listing'
  3606 GC1213                 TO F-Listing-135-REC(25:14)
  3607 GC1213              MOVE WS-Formatted-DT
  3608 GC1213                 TO F-Listing-135-REC(126:10)
  3609 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
  3610 GC1213              MOVE WS-Program-Path-TXT
  3611 GC1213                 TO F-Listing-135-REC
  3612 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
  3613 GC1213              MOVE 'Line    Statement'
  3614 GC1213                 TO F-Listing-135-REC
  3615 GC1213              MOVE WS-Page-No-TXT
  3616 GC1213                 TO F-Listing-135-REC(126:10)
  3617 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
  3618 GC1213              MOVE WS-Src-Dashes-TXT
  3619 GC1213                 TO F-Listing-135-REC
  3620 GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
  3621 GC1213          ELSE                *> PORTRAIT
  3622 GC1213              MOVE WS-Version-TXT
  3623 GC1213                 TO F-Listing-96-REC
  3624 GC1213              MOVE 'Source Listing'
  3625 GC1213                 TO F-Listing-96-REC(25:14)
  3626 GC1213              MOVE WS-Formatted-DT
  3627 GC1213                 TO F-Listing-96-REC(87:10)
  3628 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
  3629 GC1213              MOVE WS-Program-Path-TXT(40:96)
  3630 GC1213                 TO F-Listing-96-REC
  3631 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
  3632 GC1213              MOVE 'Line    Statement'
  3633 GC1213                 TO F-Listing-96-REC
  3634 GC1213              MOVE WS-Page-No-TXT
  3635 GC1213                 TO F-Listing-96-REC(87:10)
  3636 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
  3637 GC1213              MOVE WS-Src-Dashes-TXT
  3638 GC1213                 TO F-Listing-96-REC
  3639 GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
  3640 GC1213          END-IF
  3641 GC1213          COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
  3642 GC1213       END-IF
  3643 GC1213       IF L-Listing-CD = 1 *> LANDSCAPE
  3644 GC1213          EVALUATE WS-Src-Lines-NUM
  3645 GC1213          WHEN 1
  3646 GC1213             MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3647 GC1213             WRITE F-Listing-96-REC BEFORE 1
====================================================================================
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```

```
GNUCOBOL 2.2 20JUL2017  Source Listing                                       2017/07/22
                                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 88
======  =================================================================================
  3648 GC1213            SUBTRACT 1 FROM WS-Lines-Left-NUM
  3649 GC1213         WHEN 2
  3650 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3651 GC1213            MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3652 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 1-128 of stmnt
  3653 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3654 GC1213            MOVE WS-Src-Hold-TXT(129:128) TO WS-SDL-Statement-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 129-256 of stmnt
  3657 GC1213            SUBTRACT 2 FROM WS-Lines-Left-NUM
  3658 GC1213          END-EVALUATE
  3659 GC1213        ELSE               *> PORTRAIT
  3660 GC1213          EVALUATE WS-Src-Lines-NUM
  3661 GC1213          WHEN 1 *> Print only chars 1-89 of stmnt
  3662 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3663 GC1213                BEFORE 1
  3664 GC1213            SUBTRACT 1 FROM WS-Lines-Left-NUM
  3665 GC1213          WHEN 2 *> Print only chars 1-89 and 90-178 of text
  3666 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3667 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3668 GC1213                BEFORE 1
  3669 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3670 GC1213            MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3671 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3672 GC1213                BEFORE 1
  3673 GC1213            SUBTRACT 2 FROM WS-Lines-Left-NUM
  3674 GC1213          WHEN 3 *> Print chars 1-89, 90-178 and 179-256 of stmnt
  3675 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3676 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3677 GC1213                BEFORE 1
  3678 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3679 GC1213            MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-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(179:78) TO WS-SDL-Statement-TXT
  3684 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3685 GC1213                BEFORE 1
  3686 GC1213            SUBTRACT 3 FROM WS-Lines-Left-NUM
  3687 GC1213          END-EVALUATE
  3688 GC1213        END-IF
  3689          MOVE SPACES TO WS-Src-Detail-Line-TXT
  3690             .
  3691
  3692      END PROGRAM LISTING.
```

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

```
GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                      2017/07/22
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function    Defn   Where Defined   References        Page: 89
==============  ==============================  ======  ==============  ========================
CHECKSRC        000-Main                        1315 PROCEDURE
CHECKSRC        L-A1-CHR                        1305 LINKAGE           1317     1329     1332
                                                                       1339
CHECKSRC        L-A2-IDENT-DIVISION-BOOL        1310 LINKAGE           1361*
CHECKSRC        L-A2-LINKAGE-SECTION-BOOL       1309 LINKAGE           1355*
CHECKSRC        L-A2-Nothing-Special-BOOL       1311 LINKAGE           1316*
CHECKSRC        L-Argument-1-TXT                1304 LINKAGE           1313
CHECKSRC        L-Argument-2-CHR                1308 LINKAGE           1314
CHECKSRC        WS-Compressed-Src-TXT           1291 WORKING-STORAGE   1326*    1349     1353
                                                                       1359
CHECKSRC        WS-CS-CHR                       1292 WORKING-STORAGE   1333*    1339*    1348
                                                                       1352     1358
CHECKSRC        WS-I-SUB                        1300 WORKING-STORAGE   1327*    1328     1329
                                                                       1332     1339     1345*
                                                                       1346     1348     1349
                                                                       1352     1352     1353
                                                                       1358     1358     1359
CHECKSRC        WS-J-SUB                        1302 WORKING-STORAGE   1325*    1331*    1333
                                                                       1338*    1339
CHECKSRC        WS-RS-Found-SPACE-CHR           1296 WORKING-STORAGE
CHECKSRC        WS-RS-Not-Skipping-SPACE-BOOL   1298 WORKING-STORAGE   1324*    1330     1337*
CHECKSRC        WS-RS-Skipping-SPACE-BOOL       1297 WORKING-STORAGE   1334*
CHECKSRC        WS-Runtime-Switches-TXT         1295 WORKING-STORAGE
```

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GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                           2017/07/22
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References      Page: 90
==============  ==============================  ======  ==============  ========================
GCic            000-File-Error                   654 PROCEDURE
GCic            000-Main                         675 PROCEDURE
GCic            100-Initialization               699 PROCEDURE            676
GCic            200-Let-User-Set-Switches        813 PROCEDURE            679
GCic            210-Run-Compiler                 904 PROCEDURE            680
GCic            220-Make-Listing                1040 PROCEDURE            684
GCic            230-Run-Program                 1071 PROCEDURE            688
GCic            240-Find-LINKAGE-SECTION        1173 PROCEDURE            747
GCic            250-Autoload-Listing            1212 PROCEDURE            690    1031    1065
GCic            900-Terminate                   1258 PROCEDURE            692     741     884
                                                                        1032    1166
GCic            COB-COLOR-BLACK                  178 [screenio    ]      439     444     534
                                                                         544     554     559
                                                                         569     576     591
                                                                         606     622     629
                                                                         636
GCic            COB-COLOR-BLUE                   178 [screenio    ]      522
GCic            COB-COLOR-CYAN                   178 [screenio    ]      535
GCic            COB-COLOR-GREEN                  178 [screenio    ]      445     560     607
                                                                         623
GCic            COB-COLOR-MAGENTA                178 [screenio    ]
GCic            COB-COLOR-RED                    178 [screenio    ]      528     592
GCic            COB-COLOR-WHITE                  178 [screenio    ]      440     523     529
                                                                         545     555     570
                                                                         577     630     637
GCic            COB-COLOR-YELLOW                 178 [screenio    ]
GCic            COB-SCR-ESC                      178 [screenio    ]      883
GCic            COB-SCR-F1                       178 [screenio    ]      830
GCic            COB-SCR-F10                      178 [screenio    ]
GCic            COB-SCR-F11                      178 [screenio    ]
GCic            COB-SCR-F12                      178 [screenio    ]      886
GCic            COB-SCR-F13                      178 [screenio    ]
GCic            COB-SCR-F14                      178 [screenio    ]
GCic            COB-SCR-F15                      178 [screenio    ]
GCic            COB-SCR-F16                      178 [screenio    ]
GCic            COB-SCR-F17                      178 [screenio    ]
GCic            COB-SCR-F18                      178 [screenio    ]
GCic            COB-SCR-F19                      178 [screenio    ]
GCic            COB-SCR-F2                       178 [screenio    ]      836
GCic            COB-SCR-F20                      178 [screenio    ]
GCic            COB-SCR-F21                      178 [screenio    ]
GCic            COB-SCR-F22                      178 [screenio    ]
GCic            COB-SCR-F23                      178 [screenio    ]
GCic            COB-SCR-F24                      178 [screenio    ]
GCic            COB-SCR-F25                      178 [screenio    ]
GCic            COB-SCR-F26                      178 [screenio    ]
GCic            COB-SCR-F27                      178 [screenio    ]
GCic            COB-SCR-F28                      178 [screenio    ]
GCic            COB-SCR-F29                      178 [screenio    ]
GCic            COB-SCR-F3                       178 [screenio    ]      842
GCic            COB-SCR-F30                      178 [screenio    ]
GCic            COB-SCR-F31                      178 [screenio    ]
GCic            COB-SCR-F32                      178 [screenio    ]

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GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                           2017/07/22
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined    References        Page: 91
==============  =============================== ====== =============== ========================
GCic            COB-SCR-F33                     178 [screenio    ]
GCic            COB-SCR-F34                     178 [screenio    ]
GCic            COB-SCR-F35                     178 [screenio    ]
GCic            COB-SCR-F36                     178 [screenio    ]
GCic            COB-SCR-F37                     178 [screenio    ]
GCic            COB-SCR-F38                     178 [screenio    ]
GCic            COB-SCR-F39                     178 [screenio    ]
GCic            COB-SCR-F4                      178 [screenio    ]    848
GCic            COB-SCR-F40                     178 [screenio    ]
GCic            COB-SCR-F41                     178 [screenio    ]
GCic            COB-SCR-F42                     178 [screenio    ]
GCic            COB-SCR-F43                     178 [screenio    ]
GCic            COB-SCR-F44                     178 [screenio    ]
GCic            COB-SCR-F45                     178 [screenio    ]
GCic            COB-SCR-F46                     178 [screenio    ]
GCic            COB-SCR-F47                     178 [screenio    ]
GCic            COB-SCR-F48                     178 [screenio    ]
GCic            COB-SCR-F49                     178 [screenio    ]
GCic            COB-SCR-F5                      178 [screenio    ]    854
GCic            COB-SCR-F50                     178 [screenio    ]
GCic            COB-SCR-F51                     178 [screenio    ]
GCic            COB-SCR-F52                     178 [screenio    ]
GCic            COB-SCR-F53                     178 [screenio    ]
GCic            COB-SCR-F54                     178 [screenio    ]
GCic            COB-SCR-F55                     178 [screenio    ]
GCic            COB-SCR-F56                     178 [screenio    ]
GCic            COB-SCR-F57                     178 [screenio    ]
GCic            COB-SCR-F58                     178 [screenio    ]
GCic            COB-SCR-F59                     178 [screenio    ]
GCic            COB-SCR-F6                      178 [screenio    ]    859
GCic            COB-SCR-F60                     178 [screenio    ]
GCic            COB-SCR-F61                     178 [screenio    ]
GCic            COB-SCR-F62                     178 [screenio    ]
GCic            COB-SCR-F63                     178 [screenio    ]
GCic            COB-SCR-F64                     178 [screenio    ]
GCic            COB-SCR-F7                      178 [screenio    ]    865
GCic            COB-SCR-F8                      178 [screenio    ]    871
GCic            COB-SCR-F9                      178 [screenio    ]    877
GCic            COB-SCR-FATAL                   178 [screenio    ]
GCic            COB-SCR-KEY-DOWN                178 [screenio    ]
GCic            COB-SCR-KEY-UP                  178 [screenio    ]
GCic            COB-SCR-MAX-FIELD               178 [screenio    ]
GCic            COB-SCR-NO-FIELD                178 [screenio    ]
GCic            COB-SCR-OK                      178 [screenio    ]
GCic            COB-SCR-PAGE_DOWN               178 [screenio    ]
GCic            COB-SCR-PAGE_UP                 178 [screenio    ]
GCic            COB-SCR-PRINT                   178 [screenio    ]
GCic            COB-SCR-TIME-OUT                178 [screenio    ]
GCic            F-Cobc-Output-FILE              171 FILE              162    1008    1026
GCic            F-Cobc-Output-REC               172 FILE              1009   1014*   1015
                                                                      1023*  1024
GCic            F-Source-Code-FILE              174 FILE              165    655     1174
                                                                      1178   1179    1192

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GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                             2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function      Defn  Where Defined   References       Page: 92
==============  ============================== ====== =============== ========================
                                                                      1193    1200
GCic            F-Source-Code-REC                175 FILE            1183C   1197C
GCic            F1                                   WORKING-STORAGE  206
GCic            F12                                  WORKING-STORAGE  200
GCic            F2                                   WORKING-STORAGE  213
GCic            F3                                   WORKING-STORAGE  209
GCic            F4                                   WORKING-STORAGE  207
GCic            F5                                   WORKING-STORAGE  210     257
GCic            F6                                   WORKING-STORAGE  211
GCic            F7                                   WORKING-STORAGE  214
GCic            F8                                   WORKING-STORAGE  208
GCic            F9                                   WORKING-STORAGE  212
GCic            LD-Horiz-Line                    433 SCREEN           801
GCic            LD-LL-Corner                     428 SCREEN           456     486     502
                                                                      516
GCic            LD-Lower-T                       432 SCREEN           488
GCic            LD-LR-Corner                     430 SCREEN           458     490     504
                                                                      518
GCic            LD-UL-Corner                     427 SCREEN           446     460     492
                                                                      506
GCic            LD-Upper-T                       431 SCREEN           462
GCic            LD-UR-Corner                     429 SCREEN           448     464     494
                                                                      508
GCic            LD-Vert-Line                     434 SCREEN           450     451     453
                                                                      454     466     467
                                                                      468     470     471
                                                                      472     474     475
                                                                      476     478     479
                                                                      480     482     483
                                                                      484     496     497
                                                                      499     500     510
                                                                      511     513     514
GCic            LPP                                  PROCEDURE        1051C
GCic            LPPP                                 PROCEDURE        1052C
GCic            RETURN-CODE                          PROCEDURE        1010    1043*   1057*
                                                                      1059
GCic            S-Blank-SCR                      437 SCREEN           683     1234    1263
GCic            S-Switches-SCR                   439 SCREEN           827*    908     998
                                                                      1027    1042    1063
                                                                      1074    1260
GCic            SELCHAR                              PROCEDURE        719     822     825
                                                                      832     838     844
                                                                      850     861     867
                                                                      873     879     1202
GCic            WS-Cmd-Args-TXT                  229 WORKING-STORAGE  723*    725     726
                                                                      729     734
GCic            WS-Cmd-End-Quote-CHR             231 WORKING-STORAGE  727*    730
GCic            WS-Cmd-SUB                       233 WORKING-STORAGE  724*    725     726
                                                                      728*    732*    737*
GCic            WS-Cmd-TXT                       227 WORKING-STORAGE  905*    1000*   1005*
                                                                      1007C   1076*   1083*
                                                                      1093*   1096*   1103*
                                                                      1107*   1113*   1118*

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GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                              2017/07/22
                                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function    Defn   Where Defined    References        Page: 93
===============  ==============================  ======  ===============  ========================
                                                                          1123*    1131*    1139*
                                                                          1145*    1151*    1156*
                                                                          1163C    1215*    1219*
                                                                          1220C    1222*    1226*
                                                                          1227C    1237*    1240*
                                                                          1243C    1245C    1247C
                                                                          1249C    1251C
GCic             WS-Cobc-Cmd-TXT                    235 WORKING-STORAGE    906*     915*     919*
                                                                          923*     927*     932*
                                                                          937*     942*     947*
                                                                          952*     957*     961*
                                                                          974*     982*     986*
                                                                          1001
GCic             WS-Compilation-Switches-TXT        180 WORKING-STORAGE
GCic             WS-Config-Fn-TXT                    237 WORKING-STORAGE    911*     917
GCic             WS-CS-All-Switches-TXT              215 WORKING-STORAGE
GCic             WS-CS-Arg-H1-TXT                    182 WORKING-STORAGE    640*
GCic             WS-CS-Arg-H2-TXT                    183 WORKING-STORAGE    641*
GCic             WS-CS-Args-TXT                      181 WORKING-STORAGE   1154     1155
GCic             WS-CS-Config-NUM                    200 WORKING-STORAGE    632      887*     888
                                                                          889*     910
GCic             WS-CS-DEBUG-CHR                     217 WORKING-STORAGE    593      831      832*
                                                                          834*     930
GCic             WS-CS-EXECUTE-CHR                   218 WORKING-STORAGE    596      686      849
                                                                          850*     852*
GCic             WS-CS-Extra-H1-TXT                  203 WORKING-STORAGE    638*
GCic             WS-CS-Extra-H2-TXT                  204 WORKING-STORAGE    639*
GCic             WS-CS-Extra-TXT                     202 WORKING-STORAGE    978      980
GCic             WS-CS-Filename-TXT                  193 WORKING-STORAGE    632      910
GCic             WS-CS-Filenames-Table-TXT           192 WORKING-STORAGE
GCic             WS-CS-Filenames-TXT                 184 WORKING-STORAGE    192
GCic             WS-CS-FREE-CHR                      219 WORKING-STORAGE    601      872      873*
                                                                          875*     955
GCic             WS-CS-LIBRARY-CHR                   220 WORKING-STORAGE    595      843      844*
                                                                          846*     921     1081
                                                                         1136     1175*    1202*
GCic             WS-CS-LISTING-CHR                   221 WORKING-STORAGE    597      682      819*
                                                                          822*     825*     968
                                                                          970*     972
GCic             WS-CS-NOFUNC-CHR                    222 WORKING-STORAGE    599      860      861*
                                                                          863*     945
GCic             WS-CS-NOTRUNC-CHR                   223 WORKING-STORAGE    602      878      879*
                                                                          881*     935
GCic             WS-CS-Switch-Defaults-TXT           205 WORKING-STORAGE    216
GCic             WS-CS-TRACEALL-CHR                  224 WORKING-STORAGE    594      837      838*
                                                                          840*     940
GCic             WS-CS-WARNALL-CHR                   225 WORKING-STORAGE    600      866      867*
                                                                          869*     950
GCic             WS-Delete-Fn-TXT                    239 WORKING-STORAGE
GCic             WS-File-Name-TXT                    241 WORKING-STORAGE    165      663      668
                                                                          731*     736*     739
                                                                          752      755      762
                                                                          765      776     1049C

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GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                        2017/07/22
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References       Page: 94
==============  ==============================  ======  ==============  ========================
GCic            WS-File-Status-Message-TXT      245 WORKING-STORAGE
GCic            WS-FN-CHR                        242 WORKING-STORAGE     757     764*    768*
GCic            WS-FSM-Msg-TXT                   249 WORKING-STORAGE     658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
                                                                        658*    658*    658*
GCic            WS-FSM-Status-CD                 247 WORKING-STORAGE     167     658     660
GCic            WS-Horizontal-Line-TXT           251 WORKING-STORAGE     447     457     461
                                                                        463     487     489
                                                                        493     503     507
                                                                        517     801*
GCic            WS-I-SUB                         253 WORKING-STORAGE     755*    756     757
                                                                        758     760     764
                                                                        768     783*    784
                                                                        785     786     788
                                                                        792     796     909*
                                                                        920*    924*    928*
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                                                                        3552    3554    3650
                                                                        3654*   3666    3670*
                                                                        3675    3679*   3683*
LISTING          WS-Src-Dashes-TXT               2315 WORKING-STORAGE   3618    3637
LISTING          WS-Src-Detail-Line-TXT          2319 WORKING-STORAGE   3445*   3484*   3492*
                                                                        3496*   3501*   3505*
                                                                        3509*   3516*   3528*
                                                                        3532*   3536*   3646
                                                                        3651    3653*   3655
                                                                        3662    3667    3669*
                                                                        3671    3676    3678*
                                                                        3680    3682*   3684
                                                                        3689*
LISTING          WS-Src-Hold-TXT                 2324 WORKING-STORAGE   3650*   3654    3666*
                                                                        3670    3675*   3679
                                                                        3683
LISTING          WS-Src-Line-NUM                 2326 WORKING-STORAGE   3442*   3471    3483*
                                                                        3485
LISTING          WS-Src-Lines-NUM                2328 WORKING-STORAGE   3546*   3549*   3553*
                                                                        3555*   3559    3562
                                                                        3576    3644    3660
LISTING          WS-Src-SUB                      2330 WORKING-STORAGE   2499*   2552    2553
                                                                        2572*   2576    2578
                                                                        2581*   2590*   2601*
                                                                        2607*   2611    2612
                                                                        2614*   2620*   2624*
                                                                        2625    2627*   2633*
                                                                        2637*   2638    2640*
                                                                        2650*   2653*   2670*
                                                                        2675    2750*   2755*
                                                                        2757*
LISTING          WS-Suppress-FF-CHR              1497 WORKING-STORAGE   2425*   3273*   3415
                                                                        3430
LISTING          WS-Tally-QTY                    2332 WORKING-STORAGE   2789*   2791*   2792

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

```
GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                      2017/07/22
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References       Page: 102
===============  =============================   ======  ===============  ========================
                                                                         2796*    2797
LISTING          WS-Temp-10-Chars-TXT            2334 WORKING-STORAGE    2710*    2714    2715*
                                                                         2717     3465*
LISTING          WS-Temp-256-Chars-TXT          2344 WORKING-STORAGE     2474C    2711*   2718
                                                                         2730     2733    2738
                                                                         3466*    3468
LISTING          WS-Temp-32-Chars-1-TXT         2336 WORKING-STORAGE     2765*    2768    2775
LISTING          WS-Temp-32-Chars-2-TXT         2338 WORKING-STORAGE     2772*    2777*   2783
                                                                         2784*    2800
LISTING          WS-Temp-32-Chars-3-TXT         2340 WORKING-STORAGE     2773*    2778*   2786
                                                                         2787*    2800
LISTING          WS-Temp-65-Chars-TXT           2342 WORKING-STORAGE     3488*    3495    3500
                                                                         3504     3508    3520*
                                                                         3524     3527    3531
                                                                         3535
LISTING          WS-Today-DT                    2346 WORKING-STORAGE     2489*    2490
LISTING          WS-Token-Curr-TXT              2348 WORKING-STORAGE     2509     2513*   2582*
                                                                         2591*    2602*   2610*
                                                                         2623*    2636*   2648*
                                                                         2655     2668*   2678
                                                                         2680*    2698*   2765
                                                                         2812     2818    2831
                                                                         2836     2857    2862
                                                                         2866     2900    2918
                                                                         3207     3228    3238
                                                                         3252
LISTING          WS-Token-Curr-Uc-TXT           2350 WORKING-STORAGE     2510*    2513    2516
                                                                         2535     2912    3206
                                                                         3227     3237    3251
LISTING          WS-Token-Prev-TXT              2352 WORKING-STORAGE     2517*    2535*   2539*
                                                                         2598*    2813    2816
                                                                         2817*    2832    2837
                                                                         2841     2858    2863
                                                                         2872     2873*   2877
                                                                         2880*    2883*   2886*
                                                                         2889*    2892*   2895*
                                                                         2898*    2913    2919
                                                                         2923     2927*   2980
                                                                         2983*    2990    3001
                                                                         3004*    3013    3024
                                                                         3033     3061    3074
                                                                         3078*    3081*   3089*
                                                                         3097*    3104    3113
                                                                         3129     3132*   3135*
                                                                         3142     3151    3162
                                                                         3177     3180*   3187
LISTING          WS-Token-Search-TXT            2354 WORKING-STORAGE     2678*    2679    2685
LISTING          WS-Token-Type-CD               2356 WORKING-STORAGE     2583*    2592*   2603*
                                                                         2656*    2660*   2681*
                                                                         2686*    2699*
LISTING          WS-TT-Token-Is-Argtype-BOOL    2357 WORKING-STORAGE     2807     2827    2853
LISTING          WS-TT-Token-Is-EOF-BOOL        2358 WORKING-STORAGE     2506     2560*
LISTING          WS-TT-Token-Is-Function-BOOL   2359 WORKING-STORAGE     2847

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

```
GNUCOBOL 2.2 20JUL2017  Cross-Reference Listing                              2017/07/22
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 103
===============  ==============================  ======  ===============  ========================
LISTING          WS-TT-Token-Is-Identifier-BOOL  2360 WORKING-STORAGE   2693*   2840    2876
                                                                        2922    2930
LISTING          WS-TT-Token-Is-Keyword-BOOL     2361 WORKING-STORAGE   2511    2534    2811
                                                                        2830    2835    2856
                                                                        2861    2867    2917
LISTING          WS-TT-Token-Is-Lit-Alpha-BOOL   2362 WORKING-STORAGE   2616*   2642*
LISTING          WS-TT-Token-Is-Lit-Number-BOOL  2363 WORKING-STORAGE   2629*   2695    2769*
                                                                        2801*
LISTING          WS-TT-Token-Is-Reserved-Wd-BOOL 2365 WORKING-STORAGE   2512    2808*   2828*
                                                                        2854*   2871
LISTING          WS-TT-Token-Is-Verb-BOOL        2364 WORKING-STORAGE   2515    2687
LISTING          WS-Usernames-QTY                2367 WORKING-STORAGE   2500*
LISTING          WS-Version-TXT                  2369 WORKING-STORAGE   2432*   3346    3369
                                                                        3603    3622
LISTING          WS-XDL-Def-Line-NUM             2376 WORKING-STORAGE   3300*   3317*
LISTING          WS-XDL-Prog-ID-TXT              2372 WORKING-STORAGE   3297*   3309*   3313*
LISTING          WS-XDL-Ref-Flag-CHR             2382 WORKING-STORAGE   3329*
LISTING          WS-XDL-Ref-Line-NUM             2381 WORKING-STORAGE   3327*
LISTING          WS-XDL-Reference-TXT            2380 WORKING-STORAGE
LISTING          WS-XDL-Section-TXT              2378 WORKING-STORAGE   3299*   3315*
LISTING          WS-XDL-Token-TXT                2374 WORKING-STORAGE   3298*   3310*   3314*
LISTING          WS-Xref-Detail-Line-TXT         2371 WORKING-STORAGE   3260*   3267    3270*
                                                                        3280    3284*   3293
                                                                        3312    3332    3395
                                                                        3398    3401*
LISTING          WS-Xref-Lines-Per-Rec-NUM       2385 WORKING-STORAGE   2446*   2450*   3322
```

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

6. STREAMIO

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

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

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

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

- Coding a GnuCOBOL subroutine

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

- Using hexadecimal alphanumeric literals

- Using the following statements:

  o `"ACCEPT FROM ENVIRONMENT"` statement

  o `"INSPECT"` statement

  o `"STRING"` statement

- Using the following built-in subroutines:

  o `"C$PARAMSIZE"` built-in system subroutine

  o `"CBL_CLOSE_FILE"` built-in system subroutine

  o `"CBL_DELETE_FILE"` built-in system subroutine

  o `"CBL_EXIT_PROC"` built-in system subroutine

  o `"CBL_OPEN_FILE"` built-in system subroutine

  o `"CBL_READ_FILE"` built-in system subroutine

  o `"CBL_WRITE_FILE"` built-in system subroutine

- Using the following intrinsic functions:

  o `"RANDOM"` intrinsic function

  o `"TRIM"` intrinsic function

First, here is the STREAMIOcb.cpy copybook:

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

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

```
GNU COBOL 2.1 23NOV2013 Source Listing                                     2014/03/27
                               C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                            Page: 1
======  ==============================================================================
     1         >>SOURCE FORMAT IS FIXED
     2          IDENTIFICATION DIVISION.
     3          PROGRAM-ID. STREAMIO.
     4         *>****************************************************************
     5         *> Author: Gary L. Cutler                                     **
     6         *>                                                            **
     7         *> This routine centralizes all bytestream file I/O  functions **
     8         *> into one routine.  The manner in which this routine is      **
     9         *> CALLed is as follows:                                       **
    10         *>                                                            **
    11         *>         CALL "STREAMIO" USING control-block [ , arg2 ]      **
    12         *>                                                            **
    13         *> where 'control-block' is defined by the "STREAMIOcb.cpy"    **
    14         *> copybook and 'arg2' will vary, depending upon the function  **
    15         *> specified in the control block.                            **
    16         *>                                                            **
    17         *> The STREAMIO routine has an advantage over the various      **
    18         *> "CBL_xxxxxx_FILE" routines in that:                         **
    19         *>                                                            **
    20         *> 1. It automates the establishment and on-going adjustment of **
    21         *>    the file-offset value in such a way as to simplify the   **
    22         *>    sequential processing of a bytestream file (you may still **
    23         *>    specify a file-offset manually on each read or write, if  **
    24         *>    you wish)                                                **
    25         *>                                                            **
    26         *> 2. It auto-detects the size of the I/O buffer you supply to  **
    27         *>    STREAMIO, using that as the byte-count of all read and    **
    28         *>    write operations.                                        **
    29         *>                                                            **
    30         *> 3. Not only does it support the raw input and output of data **
    31         *>    that the CBL_READ_FILE and CBL_WRITE_FILE routines do,    **
    32         *>    but on input it is also capable of delivering just a      **
    33         *>    single newline-delimited or carriage-return/newline de-   **
    34         *>    limited record to the caller.                            **
    35         *>                                                            **
    36         *> 4. On output, STREAMIO can optionally append either a new-   **
    37         *>    line or carriage-return/newline sequence (your choice) to **
    38         *>    the end of every record it writes.                       **
    39         *>                                                            **
    40         *> 5. STREAMIO can automatically generate filenames for output  **
    41         *>    files if you wish, simplifying the process of creating    **
    42         *>    scratch or work files.                                   **
    43         *>                                                            **
    44         *> 6. The STREAMIO routine also allows you to (optionally) re-  **
    45         *>    gister a general error-handling routine to be given con-  **
    46         *>    trol should a fatal error be detected with STREAMIO.      **
    47         *>                                                            **
    48         *>    This routine can be "turned on" and "turned off" at will. **
    49         *>                                                            **
======================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                    Page: 1
```

```
    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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```

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

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

===
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====== ===
```
    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"**
```

==

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

==

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 '.

==

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

==

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 =
```
===

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

==

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

==

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

===

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


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

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