
Subject: Re: about DXF format

Posted by [Vince Hradil](#) on Mon, 18 Jun 2007 14:55:57 GMT

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On Jun 18, 7:23 am, JMZawo...@gmail.com wrote:

> On Jun 16, 10:20 pm, airy.ji...@gmail.com wrote:

>

>> no more people would like to discuss this topic?what a pity!

>

> I have had nothing but trouble trying to export DXF files from AutoCAD
> and read them with IDLffDXF. Some (most) objects never appear and
> others are improperly positioned or rotated. My limited investigations
> led me to conclude that while DXF may be an open standard to exchange
> CAD models, it also allows for the inclusion of proprietary formatting
> and objects. True, IDL does not support all object types that may
> occur in DXF files, but this is not the primary problem. If you read
> the DXF file directly (it's ASCII) you'll note a lot of AutoCAD
> specific stuff in there that I gather tells AutoCAD more about how to
> position and orient objects in the model. It would be much more useful
> to me if IDL could read/write either IGES or STEP files as these are
> really designed to exchange model geometries. I currently export these
> types from AutoCAD and translate them to IDL-compatible DXF files
> using 3rd party software from TechnoSoft (AML).

In my experience, it IS possible to parse a dxf file. You just have to read the docs that describe the format, then parse the file correctly. The trick is that some entities contain other entities and lines and they all have different local and global origins and scale factors. Yeah, it complicated, but I've written a parser to parse a few dxf files, and works (most of the time).

Here's my very crude code. Just try >plot_dxf, "file.dxf"

```
function resolve_inserts, innow, inserts, plines
```

```
;; plines
nbdx = where( plines.blockname ne "", nbcnt )
if nbcnt gt 0 then begin
  nbplines = plines[nbdx]
  bdx = where( nbplines.blockname eq innow.blockref, bcnt )
  for b=0l, bcnt-1 do begin
    pnow = plines[nbdx[bdx[b]]]
    *(pnow.vertices) = *(pnow.vertices) + rebin(innow.coord,
3,pnow.nvert,/sample)
    plines[nbdx[bdx[b]]] = pnow
  endfor
endif
```

```

;; inserts
nbdx = where( inserts.blockname ne "", nbcnt )
if nbcnt gt 0 then begin
    nbinsets = inserts[nbdx]
    bdx = where( nbinsets.blockname eq innow.blockref, bcnt )
    for b=0l, bcnt-1 do begin
        ininside = inserts[nbdx[bdx[b]]]
        ininside.coord = ininside.coord + innow.coord
        if size(plines,/type) eq 8 then plines =
resolve_inserts(ininside,inserts, plines)
    endfor

    return, plines
endif
end

```

```

function eval_spline, ncp, controlpts, nsegs

```

```

    tarray = findgen(nsegs)/(nsegs)
    np = (ncp-1)/3

    sval = fltarr(2,nsegs*np+1)
    for i=0l, np-1 do begin
        p0 = controlpts[*,3*i]
        p1 = controlpts[*,3*i+1]
        p2 = controlpts[*,3*i+2]
        p3 = controlpts[*,3*i+3]

        sval[*,nsegs*i] = p0
        for j=1l, nsegs-1 do begin
            t = tarray[j]
            vert = p0*(1-t)*(1-t)*(1-t) + p1*3.0*t*(1-t)*(1-t) +
p2*3.0*t*t*(1-t) + p3*t*t*t
            sval[*,nsegs*i+j] = vert
        endfor
    endfor
    sval[*,nsegs*np] = controlpts[*,ncp-1]

    return, sval
end

```

```

function decodetext, instring

```

```

    upos = strpos(instring,'\U+')
    if upos lt 0 then return, ""

    usplit = strsplit( strmid( instring,upos ), '\U+', /extract )
    outstring = bytarr(n_elements(usplit))

```

```

reads, usplit, outstring, format='(Z)'

return, string(outstring)
end

function read_dxf, fname

nlines = file_lines(fname)
print, 'NLINES: ', nlines

openr, lun, fname, /get_lun
line = "
adxf = strarr(nlines)
for i=0l, nlines-1 do begin
    readf, lun, line
    adxf[i] = line
endfor
free_lun, lun

return, adxf
end

function dxf_plines, fname, layer=layer, nsegs=nsegs

if n_elements(layer) eq 0 then layer='ALL'
if n_elements(nsegs) eq 0 then nsegs=4L

adxf = read_dxf(fname)

hdx = where( adxf eq 'HEADER')
cdx = where( adxf eq 'CLASSES')
tdx = where( adxf eq 'TABLES')
bdx = where( adxf eq 'BLOCKS')
edx = where( adxf eq 'ENTITIES')
odx = where( adxf eq 'OBJECTS')
eofdx = where( adxf eq 'EOF' )

header = adxf[hdx:cdx-2]
classes = adxf[cdx:tdx-2]
tables = adxf[tdx:bdx-2]
blocks = adxf[bdx:edx-2]
entities = adxf[edx:odx-2]
objects = adxf[odx:eofdx-2]

; hfdx = where(header eq layer, hfcnt)
; cfdx = where(classes eq layer, cfcnt)
; tfdx = where(tables eq layer, tfcnt)
; bfdx = where(blocks eq layer, bfcnt)

```

```

; efdx = where(entities eq layer, efcnt)
; ofdx = where(objects eq layer, ofcnt)

; print, 'HEADER: ', hfcnt
; print, 'CLASSES: ', cfcnt
; print, 'TABLES: ', tfcnt
; print, 'BLOCKS: ', bfcnt
; print, 'ENTITIES: ', efcnt
; print, 'OBJECTS: ', ofcnt

;; blocks
iblocks = where( blocks eq 'BLOCK', nblocks )
eblocks = where( blocks eq 'ENDBLK', neblocks )
print, 'NBLOCKS: ', nblocks

inserts = {blockname:"", blockref:"", coord:fltarr(3)}
mtexts = {blockname:"", coord:fltarr(3), height:0.0, mstring:""}
plines = {blockname:"", nvert:0L, vertices:ptr_new() }

for i=0l, nblocks-1 do begin
  ibnow = iblocks[i]
  ebnw = eblocks[i]
  bnow = blocks[ibnow:ebnw]
  boffset = ( where( bnow eq 'AcDbBlockBegin' ) )[0]
  blockptr = boffset + 2l
  blockname = bnow[blockptr]
  blockptr = boffset + 16l
  if layer ne 'ALL' then begin
    bfdx = where( bnow eq layer, bfcnt )
  endif else begin
    bfcnt = 1l
  endelse
  if bfcnt gt 0 then begin
    print, 'BLOCK: ', blockname, i+1, format="(8A,12A,8l)"
    blen = ebnw-ibnow+1
    bent = bnow[blockptr]
    while blockptr lt blen and bent ne 'ENDBLK' do begin
      bent = bnow[blockptr]
      case bent of
        'INSERT': begin
          boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbBlockReference' ) )[0]
          blockptr = blockptr + boffset + 2l
          blockref = bnow[blockptr]
          blockptr = blockptr + 2l
          xinsert = float(bnow[blockptr])
          blockptr = blockptr + 2l
          yinsert = float(bnow[blockptr])

```

```

        blockptr = blockptr + 2l
        zinsert = float(bnow[blockptr])
        print, ' INSERT: ', blockref, xinsert, yinsert,
zinsert
        inserts = [ inserts, {blockname:blockname,
blockref:blockref, coord:[xinsert,yinsert,zinsert]} ]
        blockptr = blockptr + 2l
    end
    'LINE': begin
        boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbLine' ) )[0]
        blockptr = blockptr + boffset + 2l
        startpt = fltarr(3)
        endpt = fltarr(3)
        for p=0l, 2 do begin
            startpt[p] = float(bnow[blockptr])
            blockptr = blockptr+2l
        endfor
        for p=0l, 2 do begin
            endpt[p] = float(bnow[blockptr])
            blockptr = blockptr+2l
        endfor
        print, ' LINE: ', strtrim(startpt) ;, strtrim(endpt)
        plines = [ plines, {blockname:blockname, nvert:2l,
vertices:ptr_new([[startpt],[endpt]])} ]
    end
    'SPLINE': begin
        boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbSpline' ) )[0]
        blockptr = blockptr + boffset + 2l
        splineflag = long(bnow[blockptr])

        blockptr = blockptr + 8l
        degree = long(bnow[blockptr])

        blockptr = blockptr + 2l
        nknots = long(bnow[blockptr])
        knots = fltarr(nknots)

        blockptr = blockptr + 2l
        ncontrolpts = long(bnow[blockptr])
        controlpts = fltarr(3,ncontrolpts)
        controlpts = fltarr(2,ncontrolpts)

        blockptr = blockptr + 2l
        nfitpoints = long(bnow[blockptr])
        if nfitpoints gt 0 then fitpoints =
fltarr(3,nfitpoints)

```

```

        print, ' SPLINE: ', splineflag, degree, nknots,
ncontrolpts, nfitpoints

        blockptr = blockptr + 2I
        blockptr = blockptr +
( where( strtrim(bnow[blockptr:blen-1],2) eq '40' ) )[0] + 1
        for p=0I, nknots-1 do begin
            knots[p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
        endfor
        for p=0I, ncontrolpts-1 do begin
            controlpts[0,p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
            controlpts[1,p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
;            controlpts[2,p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
        endfor
;
;        sx = sort( controlpts[0,*] )
;        controlpts = controlpts[* ,sx]
        for p=0I, nfitpoints-1 do begin
            fitpoints[0,p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
            fitpoints[1,p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
            fitpoints[2,p] = float(bnow[blockptr])
            blockptr = blockptr + 2I
        endfor
;
        print, 'DONE SPLINE'
        sval = eval_spline(ncontrolpts,controlpts,nsegs)
        np = nsegs*(ncontrolpts-1)/3+1
        sval = transpose( [ [transpose([sval])],
[replicate(0.0,np)] ] )
        plines = [ plines,
{blockname:blockname,nvert:ncontrolpts*nsegs
+1L,vertices:ptr_new(sval)} ]
        end
        'HATCH': begin
            boffset = ( where( strtrim(bnow[blockptr:blen-1],2)
eq '2' ) )[0]
            blockptr = blockptr + boffset + 1L
            pattern = bnow[blockptr]

            blockptr = blockptr + 6I
            nloops = long(bnow[blockptr])
            print, ' HATCH: ', pattern, nloops, format="(8A,12A,
8I,$)"

```

```

for p=0l, nloops-1 do begin
  blockptr = blockptr + 2l
  btype = long(bnow[blockptr])

  blockptr = blockptr + 2l
  nedg = long(bnow[blockptr])

  blockptr = blockptr + 2l
  edgetype = long(bnow[blockptr])
  case edgetype of
    1: begin ; line
      end
    2: begin ; circular arc
      end
    3: begin ; elliptical arc
      end
    4: begin ; spline
      blockptr = blockptr + 2l
      degree = long(bnow[blockptr])

      blockptr = blockptr + 6l
      nknots = long(bnow[blockptr])
      knots = fltarr(nknots)

      blockptr = blockptr + 2l
      ncontrolpts = long(bnow[blockptr])
      controlpts = fltarr(2,ncontrolpts)

      blockptr = blockptr + 2l

      print, ' SPLINE: ', degree, nknots,
ncontrolpts
      for p=0l, nknots-1 do begin
        knots[p] = float(bnow[blockptr])
        blockptr = blockptr + 2l
      endfor
      for p=0l, ncontrolpts-1 do begin
        controlpts[0,p] = float(bnow[blockptr])
        blockptr = blockptr + 2l
        controlpts[1,p] = float(bnow[blockptr])
        blockptr = blockptr + 2l
      endfor
;      print, 'DONE HATCH SPLINE'
      sval =
eval_spline(ncontrolpts,controlpts,nsegs)
      np = nsegs*(ncontrolpts-1)/3+1
      sval = transpose( [ [transpose([sval])],
[replicate(0.0,np)] ] )

```

```

        plines = [ plines,
{blockname:blockname,nvert:ncontrolpts*nsegs
+1L,vertices:ptr_new(sval)} ]
        end
    endcase
endfor
blockptr = blockptr + 12l
end
'MTEXT' : begin
    boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbMText' ) )[0]
    blockptr = blockptr + boffset + 2l
    position = fltarr(3)
    for p=0l, 2 do begin
        position[p] = float(bnow[blockptr])
        blockptr = blockptr+2l
    endfor
    height = float(bnow[blockptr])
    blockptr = blockptr+8l
    tstring = bnow[blockptr]
    mstring = decodetext(tstring)
    print, ' MTEXT: ', mstring
    mtexts = [ mtexts, {blockname:blockname,
coord:position, height:height, mstring:mstring} ]
    blockptr = blockptr + 14l
end
'POLYLINE' : begin
    seqend = ( where( bnow[blockptr:blen-1] eq
'SEQEND' ) )[0]
    vdx = where( bnow[blockptr:blockptr+seqend] eq
'AcDb2dVertex', vcnt )
    if vcnt gt 0 then begin
        vertices = fltarr(3,vcnt)
        for v=0l, vcnt-1 do begin
            boffset = ( where( bnow[blockptr:blen-1] eq
'AcDb2dVertex' ) )[0]
            blockptr = blockptr + boffset + 2l
            for p=0l, 2 do begin
                vertices[p,v] = float(bnow[blockptr])
                blockptr = blockptr+2l
            endfor
        endfor
        print, ' PLINE: ', strtrim(vertices[*,0])
        plines = [ plines, {blockname:blockname,
nvert:vcnt, vertices:ptr_new(vertices)} ]
    endif
    blockptr = blockptr + 10l
end

```



```

        'ENDBLK': break
    else: begin      ; unknown block
        print, 'Unknown Block: ', bent
        blockptr = blockptr + 1
    end
endcase
endwhile
endif else begin
;    print, 'BLOCK: ', blockname, i+1, format="(8A,12A,8I,$)"
;    print, ' (NOT FIGURE)'
    endelse
endfor

bnow = entities
blen = odx-2-edx

blockptr = 2I
if layer ne 'ALL' then begin
    bfdx = where( bnow eq layer, bfcnt )
endif else begin
    bfcnt = 1I
endelse
if bfcnt gt 0 then begin
    bent = bnow[blockptr]
    repeat begin
        bent = bnow[blockptr]
        case bent of
            'INSERT': begin
                boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbEntity' ) )[0]
                blockptr = blockptr + boffset + 2I
                if layer eq 'ALL' or layer eq bnow[blockptr] then begin
                    boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbBlockReference' ) )[0]
                    blockptr = blockptr + boffset + 2I
                    blockref = bnow[blockptr]
                    blockptr = blockptr + 2I
                    xinsert = float(bnow[blockptr])
                    blockptr = blockptr + 2I
                    yinsert = float(bnow[blockptr])
                    blockptr = blockptr + 2I
                    zinsert = float(bnow[blockptr])
                    print, ' INSERT: ', blockref, xinsert, yinsert,
zinsert
                    inserts = [ inserts, {blockname:",
blockref:blockref, coord:[xinsert,yinsert,zinsert]} ]
                    blockptr = blockptr + 2I
                endif else begin

```

```

        blockptr = blockptr + ( where( bnow[blockptr:blen-1]
eq ' 0' ) )[0] + 1
    endelse
end
'LINE': begin
    boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbEntity' ) )[0]
    blockptr = blockptr + boffset + 2l
    if layer eq 'ALL' or layer eq bnow[blockptr] then begin
        boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbLine' ) )[0]
        blockptr = blockptr + boffset + 2l
        startpt = fltarr(3)
        endpt = fltarr(3)
        for p=0l, 2 do begin
            startpt[p] = float(bnow[blockptr])
            blockptr = blockptr+2l
        endfor
        for p=0l, 2 do begin
            endpt[p] = float(bnow[blockptr])
            blockptr = blockptr+2l
        endfor
        print, ' LINE: ', strtrim(startpt) ;, strtrim(endpt)
        plines = [ plines, {blockname:", nvert:2l,
vertices:ptr_new([[startpt],[endpt]])} ]
    endif else begin
        blockptr = blockptr + ( where( bnow[blockptr:blen-1]
eq ' 0' ) )[0] + 1
    endelse
end
'SPLINE': begin
    boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbEntity' ) )[0]
    blockptr = blockptr + boffset + 2l
    if layer eq 'ALL' or layer eq bnow[blockptr] then begin
        boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbSpline' ) )[0]
        blockptr = blockptr + boffset + 2l
        splineflag = long(bnow[blockptr])

        blockptr = blockptr + 8l
        degree = long(bnow[blockptr])

        blockptr = blockptr + 2l
        nknots = long(bnow[blockptr])
        knots = fltarr(nknots)

        blockptr = blockptr + 2l

```

```

        ncontrolpts = long(bnow[blockptr])
;       controlpts = fltarr(3,ncontrolpts)
        controlpts = fltarr(2,ncontrolpts)

        blockptr = blockptr + 2l
        nfitpoints = long(bnow[blockptr])
        if nfitpoints gt 0 then fitpoints =
fltarr(3,nfitpoints)

        print, ' SPLINE: ', splineflag, degree, nknots,
ncontrolpts, nfitpoints

        blockptr = blockptr + 2l
        blockptr = blockptr +
( where( strtrim(bnow[blockptr:blen-1],2) eq '40' ) )[0] + 1
        for p=0l, nknots-1 do begin
            knots[p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
        endfor
        for p=0l, ncontrolpts-1 do begin
            controlpts[0,p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
            controlpts[1,p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
;           controlpts[2,p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
        endfor
;       sx = sort( controlpts[0,*] )
;       controlpts = controlpts[* ,sx]
        for p=0l, nfitpoints-1 do begin
            fitpoints[0,p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
            fitpoints[1,p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
            fitpoints[2,p] = float(bnow[blockptr])
            blockptr = blockptr + 2l
        endfor
;       print, 'DONE SPLINE'
        sval = eval_spline(ncontrolpts,controlpts,nsegs)
        np = nsegs*(ncontrolpts-1)/3+1
        sval = transpose( [ [transpose([sval])],
[replicate(0.0,np)] ] )
        plines = [ plines,
{blockname:",nvert:ncontrolpts*nsegs+1L,vertices:ptr_new(sv al)} ]
        endif else begin
            blockptr = blockptr + ( where( bnow[blockptr:blen-1]
eq ' 0' ) )[0] + 1
        endelse

```

```

end
'HATCH': begin
  boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbEntity' ) )[0]
  blockptr = blockptr + boffset + 2I
  if layer eq 'ALL' or layer eq bnow[blockptr] then begin
    boffset = ( where( strtrim(bnow[blockptr:blen-1],2)
eq '2' ) )[0]
    blockptr = blockptr + boffset + 1L
    pattern = bnow[blockptr]

    blockptr = blockptr + 6I
    nloops = long(bnow[blockptr])
    print, ' HATCH: ', pattern, nloops, format="(8A,12A,
8I,$)"
    for p=0I, nloops-1 do begin
      blockptr = blockptr + 2I
      btype = long(bnow[blockptr])

      blockptr = blockptr + 2I
      nedge = long(bnow[blockptr])

      blockptr = blockptr + 2I
      edgetype = long(bnow[blockptr])
      case edgetype of
        1: begin ; line
          end
        2: begin ; circular arc
          end
        3: begin ; elliptical arc
          end
        4: begin ; spline
          blockptr = blockptr + 2I
          degree = long(bnow[blockptr])

          blockptr = blockptr + 6I
          nknots = long(bnow[blockptr])
          knots = fltarr(nknots)

          blockptr = blockptr + 2I
          ncontrolpts = long(bnow[blockptr])
          controlpts = fltarr(2,ncontrolpts)

          blockptr = blockptr + 2I

          print, ' SPLINE: ', degree, nknots,
ncontrolpts
          for p=0I, nknots-1 do begin

```

```

        knots[p] = float(bnow[blockptr])
        blockptr = blockptr + 2I
    endfor
    for p=0I, ncontrolpts-1 do begin
        controlpts[0,p] = float(bnow[blockptr])
        blockptr = blockptr + 2I
        controlpts[1,p] = float(bnow[blockptr])
        blockptr = blockptr + 2I
    endfor
;    print, 'DONE HATCH SPLINE'
    sval =
eval_spline(ncontrolpts,controlpts,nsegs)
    np = nsegs*(ncontrolpts-1)/3+1
    sval = transpose( [ [transpose([sval])],
[replicate(0.0,np)] ] )
    plines = [ plines,
{blockname:",nvert:ncontrolpts*nsegs+1L,vertices:ptr_new(sv al)} ]
    end
    endcase
    endfor
    blockptr = blockptr + 12I
endif else begin
    blockptr = blockptr + ( where( bnow[blockptr:blen-1]
eq ' 0' ) )[0] + 1
    endelse
end
'MTEXT' : begin
    boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbEntity' ) )[0]
    blockptr = blockptr + boffset + 2I
    if layer eq 'ALL' or layer eq bnow[blockptr] then begin
        boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbMText' ) )[0]
        blockptr = blockptr + boffset + 2I
        position = fltarr(3)
        for p=0I, 2 do begin
            position[p] = float(bnow[blockptr])
            blockptr = blockptr+2I
        endfor
        height = float(bnow[blockptr])
        blockptr = blockptr+8I
        tstring = bnow[blockptr]
        mstring = decodetext(tstring)
        print, ' MTEXT: ', mstring
        mtexts = [ mtexts, {blockname:", coord:position,
height:height, mstring:mstring} ]
        blockptr = blockptr + 14I
    endif else begin

```

```

        blockptr = blockptr + ( where( bnow[blockptr:blen-1]
eq ' 0' ) )[0] + 1
    endelse
end
'POLYLINE' : begin
    boffset = ( where( bnow[blockptr:blen-1] eq
'AcDbEntity' ) )[0]
    blockptr = blockptr + boffset + 2I
    if layer eq 'ALL' or layer eq bnow[blockptr] then begin
        seqend = ( where( bnow[blockptr:blen-1] eq
'SEQEND' ) )[0]
        vdx = where( bnow[blockptr:blockptr+seqend] eq
'AcDb2dVertex', vcnt )
        if vcnt gt 0 then begin
            vertices = fltarr(3,vcnt)
            for v=0I, vcnt-1 do begin
                boffset = ( where( bnow[blockptr:blen-1] eq
'AcDb2dVertex' ) )[0]
                blockptr = blockptr + boffset + 2I
                for p=0I, 2 do begin
                    vertices[p,v] = float(bnow[blockptr])
                    blockptr = blockptr+2I
                endfor
            endfor
            print, ' PLINE: ', strtrim(vertices[*],0)
            plines = [ plines, {blockname:", nvert:vcnt,
vertices:ptr_new(vertices)} ]
        endif
        blockptr = blockptr + 10I
    endif else begin
        blockptr = blockptr + ( where( bnow[blockptr:blen-1]
eq ' 0' ) )[0] + 1
    endelse
end
'ENDSEC': break
else: begin ; unknown block
    print, 'Unknown Block: ', bent
    blockptr = blockptr + ( where( bnow[blockptr:blen-1] eq
' 0' ) )[0] + 1
end
endcase
endrep until blockptr ge blen or bent eq 'ENDSEC'
endif else begin
;    print, 'BLOCK: ', blockname, i+1, format="(8A,12A,8I,$)"
;    print, ' (NOT FIGURE)'
endelse

ninserts = ( size(inserts,/dimensions) )[0]

```

```

if ninserts gt 1 then begin
  ninserts = ninserts - 1
  inserts = inserts[1:ninserts]
endif else begin
  inserts = (-1)
endelse

nmtxts = ( size(mtxts,/dimensions) )[0]
if nmtxts gt 1 then begin
  nmtxts = nmtxts - 1
  mtxts = mtxts[1:nmtxts]
endif else begin
  mtxts = (-1)
endelse

nplines = ( size(plines,/dimensions) )[0]
ptr_free, (plines[0]).vertices
if nplines gt 1 then begin
  nplines = nplines - 1
  plines = plines[1:nplines]
endif else begin
  plines = (-1)
endelse

;; resolve inserts
if size(inserts,/type) eq 8 then begin
  idx = where( inserts.blockname eq "", cnt )
  for i=0L, cnt-1 do begin
;    print, i+1, ' of ', cnt
;    ans = ""
;    read, ans, prompt='Enter something:'
    innow = inserts[idx[i]]
    if size(plines,/type) eq 8 then plines =
resolve_inserts(innow,inserts, plines)
  endfor
endif

  return, plines
end

pro plot_dxf, fname, nsegs=nsegs, layer=layer

colors
bignum = 9999999.9
minx = bignum
maxx = -bignum
miny = bignum
maxy = -bignum

```

```

if n_elements(nsegs) eq 0 then nsegs=10L

plines = dxf_plines(fname, layer=layer, nsegs=nsegs)
if size(plines,/type) ne 8 then return
nplines = n_elements(plines)
for i=0L, nplines-1 do begin
    minx = min( *(plines[i].vertices))[0,*] < minx
    miny = min( *(plines[i].vertices))[1,*] < miny
    maxx = max( *(plines[i].vertices))[0,*] > maxx
    maxy = max( *(plines[i].vertices))[1,*] > maxy
endfor

mmx = [minx,maxx]
mmy = [miny,maxy]

print, mmx
print, mmy

mmx = [0,300]
mmy = [0,300]

plot, [0,0], [1,1], /nodata, /noerase, xstyle=5, ystyle=5, /
isotropic, xrange=mmx, yrange=mmy

for j=0L, nplines-1 do plots, *(plines[j].vertices)

return
end

```
