Subject: Re: Implied do loops in IDL
Posted by knipp on Tue, 14 Jun 1994 07:53:36 GMT
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In article 1121921004A@llyene.jpl.nasa.gov, tonym@lurleen.jpl.nasa.gov (Tony Mannucci) writes:
> I have a need for implied do loops in IDL but they appear to be unsupported.
> My need occurs when reading data from a file.
>
> Here is an example:
>
> In FORTRAN, the file was written as:
>
> write(unit) n, (data(i), i = 1, n)
>
> and read as:
>
> read(unit) n, (data(i), i=1, n)
>
> In this example, n is not generally fixed for every file record.
> It seems that the only way to read such files is with implied do's.
>
> Note that I am trying to avoid calling a FORTRAN routine at this
> point. Does anyone know if "native" IDL can handle such reads
> and writes?
>
> Tony Mannucci   Jet Propulsion Laboratory
> tonym@lurleen.jpl.nasa.gov   4800 Oak Grove Drive
>   M/S 238-600
> Voice: (818)354-1699 Fax: (818)393-4965   Pasadena, CA 91109

If you know the n (and type of your data) for each record, try
the following:

```
; (assuming your data is of type DOUBLE)

openr, uni, file, /get_lun

line = ''

for  i=0, n_lines-1l do begin

 readf, uni, line

 data = dblarr(n(i))
 sdowf = something_dependent_of_write_format
  ; p.e. if written with f8.3,  then sdowf = 8
```

```
 for  j=0, n(i)-1 do $
  data(j) = double(strmid(line, j, j + sdowf


 ; ... processing

endfor
free_lun, uni
```

I do not know if this helps - and it also seems to be quite slow,

Karlheinz


```
    __ _____  __
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```

Subject: Re: Implied do loops in IDL
Posted by sjt on Tue, 14 Jun 1994 09:25:26 GMT
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Tony Mannucci (tonym@lurleen.jpl.nasa.gov) wrote:
: I have a need for implied do loops in IDL but they appear to be unsupported.
: My need occurs when reading data from a file.

: Here is an example:

: In FORTRAN, the file was written as:

: write(unit) n, (data(i), i = 1, n)

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: In this example, n is not generally fixed for every file record.
: It seems that the only way to read such files is with implied do's.

: Note that I am trying to avoid calling a FORTRAN routine at this
: point. Does anyone know if "native" IDL can handle such reads

: and writes?

Probably not exactly as given as array elements and subranges are
considered to be expressions and are thus passed by value. However if
you can modify the fortran program to use:
 write(unit) n
 write(unit) (data(i), i=1,n)
then it becomes trivial:

readu, unit, n
data=fltarr(n)
readu, unit, data

If you can't modify the fortran then the bset I can think of in 2 minutes is:

point_lun, -unit, posit ; Get the current location
readu, unit, n
data=fltarr(n)
point_lun, unit, posit ; Restore file pointer.
readu, n,data

N.B. Remember fortran unformatted is a nasty format on Unix systems which
needs the /f77_unformatted key in the open.

: Tony Mannucci Jet Propulsion Laboratory
: tonym@lurleen.jpl.nasa.gov 4800 Oak Grove Drive
: M/S 238-600
: Voice: (818)354-1699 Fax: (818)393-4965 Pasadena, CA 91109

--
James Tappin, School of Physics & Space Research
University of Birmingham
sjt@xun8.sr.bham.ac.uk
"If all else fails--read the instructions!"

O__
-- \/`

Subject: Re: Implied do loops in IDL
Posted by landers on Tue, 14 Jun 1994 14:33:16 GMT
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In article <tonym.1121921004A@llyene.jpl.nasa.gov>, tonym@lurleen.jpl.nasa.gov (Tony
Mannucci) writes:
|> In FORTRAN, the file was written as:
|>
|> write(unit) n, (data(i), i = 1, n)

|>
|> and read as:
|>
|> read(unit) n, (data(i), i=1, n)

you could do something like this:

```
   openr, unit,/Get_Lun, filename, /f77_Unformatted
; ....
   while( reading_these_lines) do begin

file = fstat( unit ) ; remember where record begins
n = 0L   ; make sure you read the right data type
readu, unit, n  ; read the data count
data = fltarr( n ) ; make data array
point_lun, unit, file.cur_ptr ; rewind to the beginning of the record
readu, unit, n, data ; re-read the record, with data

  ; ... process data ...

   end
```

;Dave

Subject: Re: Implied do loops in IDL
Posted by leic on Wed, 15 Jun 1994 17:15:03 GMT
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It is possible to read FORTRAN binary as normal (ie. without the
/F77_unformatted keyword) provided you know how FORTRAN handles
the unformatted records.
I have to do this with data I use which is output in exactly the
same implied DO loop way as is your data.

On our system (SGI IRIX 5) FORTRAN prepends and appends 4 bytes
to each record. This is a long word byte count of the record
length.

To read this data back in use the following algorithm :

```
;   Open the file as a normal data file:
  OPENR, lun, /GET_LUN, file

;   Define a long word byte count to read at the start and end of
;   each record:
  byte_count = 1L
```

```
;   To read a single record, first read the byte count, then create
;   an array of the necessary data type and size:
  READU,lun, byte_count
  data = LONARR(byte_count/4)

;   Finally, read the array and the terminating byte count:
  READU,lun, data,byte_count
```

I am pretty sure that SunOS also uses a 4byte prefix/postfix byte count. The only real way to be sure is to use od to get a dump of the first few records of the file and see what is in there.

Hope this helps.

Subject: Re: Implied do loops in IDL
Posted by thompson on Thu, 16 Jun 1994 13:56:37 GMT
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leic@eiscata.ag.rl.ac.uk (University of Leicester) writes:

> I am pretty sure that SunOS also uses a 4byte prefix/postfix byte
> count. The only real way to be sure is to use od to get a dump
> of the first few records of the file and see what is in there.

Yes, it does.

Bill Thompson
