Subject: Re: How to append a multi dimensional array?
Posted by Brian Daniel on Wed, 05 Jan 2011 12:04:51 GMT
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On Jan 5, 6:01 am, Balt <bindermue...@gmail.com> wrote:
> Hi all,
>
> a seemingly trivial problem and I can't get my head around it. Does
> anyone see the solution?
>
> Given:
> IDL> x = [1,2,3]
> IDL> y = [4,5,6]
> IDL> bigarray = [[x], [y]]
> IDL> help,bigarray
> BIGARRAY INT = Array[3, 2]
>
> Except, I can't do it like that, because I need to create BIGARRAY
> step by step, i.e. there are steps that require bigarray to already
> exist when y is calculated. And y then needs to be dynamically added
> to bigarray.
>
> How can I add a vector to an array generically? In "pseudo code", I
> need to be able to say bigarray[0] = x, then later bigarray[1] = y and
> so forth... all with dynamic (and automatic) resizing of bigarray, of
> course... :-)
>
> I suspect this is really simple and I've done similar things like
> adding a single element to an array dynamically (array = [[array],
> newval]) but this doesn't work when newval is a vector!
>
> Any hints greatly appreciated!
>
> - Balt

Part of the problem is how to concatenate arrays. Say your array is N by M and you wanted to concatenate it with a vector such that it'll be an N by M+1 array, then:

array = [[array],[reform(vector,N,1)]

Or, if the vector is of length M (column vector), then concatenating to N+1 by M is:

array = [array,transpose(vector)]

Cheers,
Brian

Subject: Re: How to append a multi dimensional array?
Posted by Balt on Wed, 05 Jan 2011 13:36:34 GMT
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Thanks Brian. This actually does work when I execute it manually on a small array:

```
IDL> array=[1,2,3]
IDL> vector=[4,5,6]
IDL> array = [[array],[reform(vector,3,1)]]
IDL> help,array
ARRAY           INT       = Array[3, 2]
IDL> print,array
       1       2       3
       4       5       6
```

That's exactly what I wanted. However.... when I build it into my code, it works for the first 2 concatenations, but on the third it fails, even though the array dimensions are all the same. I'm at a loss... here's the code, am I missing something?

```
; now read the baselines
FOR bl = 0, N_ELEMENTS(baselines) - 1 DO BEGIN
  READCOL,baselines[bl], ti, pi, FORMAT='D,D', /SILENT
  ; add a new column to the array for each baseline.
  ; each baseline data can then be accessed as:
  ; Phi[*,bl] <= this would return all phase information for baseline
bl
  IF bl EQ 0 THEN BEGIN
    Phasetime = ti
    Phi = pi
  ENDIF ELSE BEGIN
    Phasetime = [[Phasetime],[reform(ti,N_ELEMENTS(ti),bl)]]
    Phi = [[Phi],[reform(pi,N_ELEMENTS(pi),bl)]]
  ENDELSE
ENDFOR
```

It dies with this error when bl = 2:
% REFORM: New subscripts must not change the number elements in TI.

But all the dimensions look identical:

```
IDL> help,ti
TI              DOUBLE    = Array[718]
IDL> help,pi
PI              DOUBLE    = Array[718]
IDL> help,phasetime
PHASETIME       DOUBLE    = Array[718, 2]
IDL> help,phi
```

PHI DOUBLE = Array[718, 2]

Confused...

Subject: Re: How to append a multi dimensional array?
Posted by Balt on Wed, 05 Jan 2011 13:46:39 GMT
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I think I answered myself. I thought the last parameter on reform is
the position for the insert. Duh. Keeping that as 1, and all is happy.

Thanks again!

Subject: Re: How to append a multi dimensional array?
Posted by David Fanning on Wed, 05 Jan 2011 13:47:25 GMT
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Balt writes:

> a seemingly trivial problem and I can't get my head around it. Does
> anyone see the solution?
>
> Given:
> IDL> x = [1,2,3]
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> step by step, i.e. there are steps that require bigarray to already
> exist when y is calculated. And y then needs to be dynamically added
> to bigarray.
>
> How can I add a vector to an array generically?

You might want to have a look at the Dimensional Juggling
and Array Concatenation tutorials:

http://www.dfanning.com/tips/rebin_magic.html
http://www.dfanning.com/tips/array_concatenation.html

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
