Subject: Array Dimensions and WRITE_GIF
Posted by Burkhard Prause on Fri, 26 Dec 1997 08:00:00 GMT
View Forum Message <> Reply to Message

Hi everybody,

a question from an occasional user:

I thought I'd use IDL to reformat several hundred tiff files into gifs.
So TIFF_READ reads every tiff image into a three dimensional array, of dimension (3,*,*).

WRITE_GIF then gives me the error message:Must be a byte matrix.

This happens when I use my own code, the JHU tif2gif.pro, or line by line. Since I want to process hundreds of these, using gifscreen is out of the question, though it works for single images.

Why this is happening, I don't know - it seems to work for other people, since the nice folks at JHU put their code out there. I'd be satisfied to simply truncate the first dimension and write just a (1,*,*) array into gif, but it will not accept that either.

How do I extract a truly two dimensional array from a three dimensional one, if the "first" dimension is the one to be eliminated?

I'll be happy for any insight into this problem.
--
****
BURKHARD A. PRAUSE
DEPARTMENT OF PHYSICS
UNIVERSITY OF NOTRE DAME
NOTRE DAME, IN 46556
bprause@campra.phys.nd.edu
(219) 631-4088
Fax: (219) 6315952
****

Subject: Re: array dimensions
Posted by davidf on Sat, 07 Apr 2001 14:03:32 GMT
View Forum Message <> Reply to Message

Francesco (francesco.spada@jrc.it) writes:

> Hi to everybody,
>
> I have an array

>
> myarray fltarr[dimx,dimy,dimz]
>
> How can I get the value of dimx, dimy and dimz?
>
> Whith n_elements I have only the total number.

dimensions = Size(myarray, /Dimensions)

Cheers,

David
--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by Richard French on Sat, 07 Apr 2001 23:41:30 GMT
View Forum Message <> Reply to Message

David Fanning wrote:
>> dimensions = Size(myarray, /Dimensions)
>
> Cheers,

David is the master of keywords - I've used SIZE all these years without knowing that there was a /DIMENSIONS keyword. I guess the only way to know about these things is to read through the documentation over and over again and take notes on potentially useful keywords and options.

Which brings me to my question - does anyone out there have a favorite keyword on a routine that we mere mortals might not know about, but which
might make our lives much easier? Any suggestions welcome, except for HISTOGRAM and PLOT!

Dick French

Subject: Re: array dimensions
Posted by davidf on Sun, 08 Apr 2001 01:38:06 GMT
View Forum Message <> Reply to Message

Richard G. French (rfrench@wellesley.edu) writes:

> David is the master of keywords - I've used SIZE all these years without
> knowing that there was a /DIMENSIONS keyword. I guess the only way to
> know about these things is to read through the documentation over and
> over again and take notes on potentially useful keywords and options.

Gosh, the only way I learn *anything* is to read the
documentation over and over again. Do you mean there
is another way!?

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by davidf on Sun, 08 Apr 2001 01:40:17 GMT
View Forum Message <> Reply to Message

Richard G. French (rfrench@wellesley.edu) writes:

> Which brings me to my question - does anyone out there have a favorite
> keyword on a routine that we mere mortals might not know about, but
> which
> might make our lives much easier?

I'm inordinately fond of DECOMPOSED=0. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by Craig Markwardt on Sun, 08 Apr 2001 13:37:22 GMT
View Forum Message <> Reply to Message

"Richard G. French" <rfrench@wellesley.edu> writes:

> David Fanning wrote:
>>> dimensions = Size(myarray, /Dimensions)
>>
>> Cheers,
>
> David is the master of keywords - I've used SIZE all these years without
> knowing that there was a /DIMENSIONS keyword. I guess the only way to
> know about these things is to read through the documentation over and
> over again and take notes on potentially useful keywords and options.

The DIMENSION keyword is *new* when judged by the "all these years"
standard. It first appeared in IDL 5.1.

If you are interested in important keywords, I've found
SMOOTH(/EDGE_TRUNCATE) indispensable, as well as CONVOL(/CENTER). I
don't do *that* much time series analysis but it seems I always need
these keywords when I do.

Craig

--

Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---

Subject: Re: array dimensions
Posted by davidf on Sun, 08 Apr 2001 14:09:32 GMT
View Forum Message <> Reply to Message

Craig Markwardt (craigmnet@cow.physics.wisc.edu) writes:

> The DIMENSION keyword is *new* when judged by the "all these years"
> standard. It first appeared in IDL 5.1.

Wasn't it IDL 5.3? I know I had nothing but trouble
using it for the longest time. I really didn't start
using the keyword in public programs until IDL 5.4
had been out for 6 months or so. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by Craig Markwardt on Sun, 08 Apr 2001 14:33:38 GMT
View Forum Message <> Reply to Message

davidf@dfanning.com (David Fanning) writes:
> Craig Markwardt (craigmnet@cow.physics.wisc.edu) writes:
>
>> The DIMENSION keyword is *new* when judged by the "all these years"
>> standard. It first appeared in IDL 5.1.
>
> Wasn't it IDL 5.3? I know I had nothing but trouble
> using it for the longest time. I really didn't start
> using the keyword in public programs until IDL 5.4
> had been out for 6 months or so. :-)

IDL> print, !version
{ alpha OSF unix 5.1 Apr 13 1998}
IDL> print, size([0], /dimension)
1

'Twould actually be nice if RSI put a compatibility matrix in the
documentation for things like this.

Craig

--
---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: array dimensions
Posted by francesco.spada on Sun, 08 Apr 2001 15:38:28 GMT
View Forum Message <> Reply to Message

On Sat, 7 Apr 2001 19:40:17 -0600, davidf@dfanning.com (David Fanning)
wrote:

> Richard G. French (rfrench@wellesley.edu) writes:
>
>> Which brings me to my question - does anyone out there have a favorite
>> keyword on a routine that we mere mortals might not know about, but
>> which
>> might make our lives much easier?
>
> I'm inordinately fond of DECOMPOSED=0. :-)

I'm particulary interested in this keyword since I have many problem
with colors.

First of all I'm working with IDL 5.4 for win and I use WIN98 (16.8
millions of colors (24 bit)).

For fixing some color problem I use (taken from the demo of IDL, I
don't know what they mean):

```
device, decomposed=0
device, bypass_translation=0
```

When I make some contour with /fill all is all right, but when I try
to use xinteranimate

```
wdelete
xinteranimate, set = [xw,yw,hrs]
for i=0,hrs-1 do begin
  xinteranimate,frame=i,image=imgs(*,*,i)
endfor
xinteranimate
```

I get completely different (and not really nice!!) colors from the
imgs that I see before the animation.

Does anyone can tell me why and what's the meaning (in a simpler way
than that of the IDL man) of the device keyword I use?

Thank you very much also for helping me with the /dimension keyword!!

Ciao

Francesco

Subject: Re: array dimensions
Posted by davidf on Sun, 08 Apr 2001 16:11:02 GMT
View Forum Message <> Reply to Message

Francesco (francesco.spada@jrc.it) writes:

> I'm particulary interested in this keyword since I have many problem
> with colors.
>
> First of all I'm working with IDL 5.4 for win and I use WIN98 (16.8
> millions of colors (24 bit)).
>
> For fixing some color problem I use (taken from the demo of IDL, I
> don't know what they mean):
>
> device, decomposed=0
> device, bypass_translation=0
>
> When I make some contour with /fill all is all right, but when I try
> to use xinteranimate
>
> wdelete
> xinteranimate, set = [xw,yw,hrs]
> for i=0,hrs-1 do begin
> xinteranimate,frame=i,image=imgs(*,*,i)
> endfor
> xinteranimate
>
> I get completely different (and not really nice!!) colors from the
> imgs that I see before the animation.
>
> Does anyone can tell me why and what's the meaning (in a simpler way
> than that of the IDL man) of the device keyword I use?

In a simple way, DECOMPOSED=0 means don't take this number
I specify for a color and decompose it into 8-bits of red
information, and 8-bits of green information, and 8-bits
of blue information. Instead, use the number I specify as
an index into a color lookup table, and use the RGB values you
find there to specify the color I want.

You can learn a great deal about color by reading these
articles on my web page:

  http://www.dfanning.com/documents/tips.html#UsingColors

Or, you could purchase my book, which only costs about
16 million lira in Italy, I think. :-)

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by web on Mon, 09 Apr 2001 00:55:34 GMT
View Forum Message <> Reply to Message

David,

I still remember that decomposed=0. You know before that, I change my screen color set frequently. And I had wasted much time to find a way to set the display color.

To read the help document is too hard. Are there any good course or document on the web?

By the way, I have known how to draw solid arrow, but all the arrow I draw are ploted in 'velocity', then how to draw solid arrow? It seems that there is not any solid keywords there.

Best
Jiali

"David Fanning" <davidf@dfanning.com> wrote in message
news:MPG.15396eec7cdabf7989ddb@news.frii.com...
> Gosh, the only way I learn *anything* is to read the
> documentation over and over again. Do you mean there
> is another way!?
>
> Cheers,
>
> David
>
> --
> David Fanning, Ph.D.
> Fanning Software Consulting
> Phone: 970-221-0438 E-Mail: davidf@dfanning.com
> Coyote's Guide to IDL Programming: http://www.dfanning.com/

> Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by davidf on Mon, 09 Apr 2001 01:29:43 GMT
View Forum Message <> Reply to Message

web (jiali3@21cn.com) writes:

> I still remember that decomposed=0. You know before that, I change my screen
> color set frequently. And I had wasted much time to find a way to set the
> display color.

I used to fool around with it too. But it was
too much work. So I just wrote a bunch of color
tools that don't care whether color decomposition
is turned on or off and I use those. I haven't
set the color decomposition keyword (or even looked
to see what it is set to) for well over a year now. :-)

> To read the help document is too hard. Are there any good course or document
> on the web?

Programming itself is too hard. There really should
be some other way. I hear tell there is a pretty good
book around about IDL Programming, but I don't have the
time to read it, and I can't remember the author anyway.

> By the way, I have known how to draw solid arrow, but all the arrow I draw
> are ploted in 'velocity', then how to draw solid arrow? It seems that there
> is not any solid keywords there.

You will probably have to modify something like the VELOVECT
procedure. Everywhere it is using a PLOTS to draw the arrow,
you might want to substitute an ARROW, /SOLID command. It will
be a bit slower, of course, but it will probably look good.

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by Richard French on Mon, 09 Apr 2001 02:42:49 GMT
View Forum Message <> Reply to Message

Craig Markwardt wrote:

> If you are interested in important keywords, I've found
> SMOOTH(/EDGE_TRUNCATE) indispensable, as well as CONVOL(/CENTER). I
> don't do *that* much time series analysis but it seems I always need
> these keywords when I do.
>

Now that you mention SMOOTH, one of my pet peeves is that
y=SMOOTH(array,n) gives an error message when n=1. There are lots of
instances where the degree of smoothing is calculated on the fly,
and one common instance is that you want no smoothing at all - i.e.
just give me the original array, unsmoothed. I've ended up writing
my own routine MYSMOOTH which is identical to smooth except that
it does not barf when n=1. Perhaps this has been changed recently,
but I don't think so. Does anyone have a good explanation for why
n=1 does not have the expected behavior of returning the array
unsmoothed? Or is there a keyword I have not been noticing that
can handle this case?

Dick French

Subject: Re: array dimensions
Posted by davidf on Mon, 09 Apr 2001 03:13:23 GMT
View Forum Message <> Reply to Message

Richard G. French (rfrench@wellesley.edu) writes:

> Now that you mention SMOOTH, one of my pet peeves is that
> y=SMOOTH(array,n) gives an error message when n=1. There are lots of
> instances where the degree of smoothing is calculated on the fly,
> and one common instance is that you want no smoothing at all - i.e.
> just give me the original array, unsmoothed. I've ended up writing
> my own routine MYSMOOTH which is identical to smooth except that
> it does not barf when n=1. Perhaps this has been changed recently,
> but I don't think so. Does anyone have a good explanation for why
> n=1 does not have the expected behavior of returning the array
> unsmoothed? Or is there a keyword I have not been noticing that
> can handle this case?

Having had some modest experience these past few years
writing programs for public consumption, allow me to
make an observation or two.

I don't know how it is done in the real world, but
in my world a program idea is generated as a result
of a problem I have encountered (usually more than once)
in my own work. I come up with what I almost always
mistakenly believe is a clever idea and I code it up.

The program stays at this stage for some indeterminate
amount of time, usually until someone runs into a similar
problem and asks a question on the newsgroup. "Oh", I think,
"I have a clever solution to *that* problem. I'll clean
it up for them and offer it on my web page."

In the course of "cleaning it up", I usually discover
that my clever solution is really not as clever as I
thought it was and that it tends to work only in the
narrow confines of its original purpose. So I
make it more general. In fact, I usually try to imagine
all the ways it might be used.

Now, I am known in some circles as having a pretty
fertile imagination, but I have to admit that one of the
things that would *never* occur to me if I was writing
a SMOOTH function is that someone would use it if they
didn't want to smooth anything. Are you sure it would
have occurred to you?

Cheers,

David

--
David Fanning, Ph.D.
Fanning Software Consulting
Phone: 970-221-0438 E-Mail: davidf@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: array dimensions
Posted by Martin Schultz on Mon, 09 Apr 2001 08:16:38 GMT
View Forum Message <> Reply to Message

"Richard G. French" wrote:
>
> David Fanning wrote:
>>> dimensions = Size(myarray, /Dimensions)
>>

>> Cheers,
>
> David is the master of keywords - I've used SIZE all these years without
> knowing that there was a /DIMENSIONS keyword. I guess the only way to
> know about these things is to read through the documentation over and
> over again and take notes on potentially useful keywords and options.
>
> Which brings me to my question - does anyone out there have a favorite
> keyword on a routine that we mere mortals might not know about, but
> which
> might make our lives much easier? Any suggestions welcome, except for
> HISTOGRAM and PLOT!
>
> Dick French

Not a favorite keyword, but a favorite tool: Get a decent system (if you haven't one), install emacs with idlwave, run the routine-info collection, and then you have all the keywords you never knew but always dreamt about literally at your fingertips.

Cheers,

Martin

--
[[[[[[[[[
[[Dr. Martin Schultz   Max-Planck-Institut fuer Meteorologie   [[
[[Bundesstr. 55, 20146 Hamburg   [[
[[phone: +49 40 41173-308   [[
[[fax: +49 40 41173-298   [[
[[martin.schultz@dkrz.de   [[
[[[[[[[[[

Subject: Re: array dimensions
Posted by wmconnolley on Mon, 09 Apr 2001 09:40:56 GMT
View Forum Message <> Reply to Message

David Fanning <davidf@dfanning.com> wrote:
> Richard G. French (rfrench@wellesley.edu) writes:

>> Now that you mention SMOOTH, one of my pet peeves is that
>> y=SMOOTH(array,n) gives an error message when n=1. There are lots of
>> instances where the degree of smoothing is calculated on the fly,

> Now, I am known in some circles as having a pretty
> fertile imagination, but I have to admit that one of the

> things that would *never* occur to me if I was writing
> a SMOOTH function is that someone would use it if they
> *didn't* want to smooth anything.

Well, I have exactly the same experience as RGF: wanting a variable
degree of smoothing, which may well be none at all. Gratuitous
error messages are unwelcome (at most it should *warn* you that
you have set smoothing to 1).

-W.

--
William M Connolley | wmc@bas.ac.uk | http://www.nerc-bas.ac.uk/icd/wmc/
Climate Modeller, British Antarctic Survey | Disclaimer: I speak for myself
I'm a .signature virus! copy me into your .signature file & help me spread!

Subject: Re: array dimensions
Posted by Craig Markwardt on Mon, 09 Apr 2001 13:23:32 GMT
View Forum Message <> Reply to Message

davidf@dfanning.com (David Fanning) writes:
> Now, I am known in some circles as having a pretty
> fertile imagination, but I have to admit that one of the
> things that would *never* occur to me if I was writing
> a SMOOTH function is that someone would use it if they
> *didn't* want to smooth anything. Are you sure it would
> have occurred to you?

Yes, it's called the degenerate case. REBIN and REFORM can
essentially do this.

Craig

--
---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: array dimensions
Posted by Paul van Delst on Mon, 09 Apr 2001 14:52:56 GMT
View Forum Message <> Reply to Message

"Richard G. French" wrote:

>
> Craig Markwardt wrote:
>
>> If you are interested in important keywords, I've found
>> SMOOTH(/EDGE_TRUNCATE) indispensable, as well as CONVOL(/CENTER). I
>> don't do *that* much time series analysis but it seems I always need
>> these keywords when I do.
>>
>
> Now that you mention SMOOTH, one of my pet peeves is that
> y=SMOOTH(array,n) gives an error message when n=1. There are lots of
> instances where the degree of smoothing is calculated on the fly,
> and one common instance is that you want no smoothing at all - i.e.
> just give me the original array, unsmoothed.

Jeez, how about:

IF (n GT 1) THEN SMOOTH(array, n)

?

--
Paul van Delst A little learning is a dangerous thing;
CIMSS @ NOAA/NCEP Drink deep, or taste not the Pierian spring;
Ph: (301)763-8000 x7274 There shallow draughts intoxicate the brain,
Fax:(301)763-8545 And drinking largely sobers us again.
paul.vandelst@noaa.gov Alexander Pope.

Subject: Re: array dimensions
Posted by Paul van Delst on Mon, 09 Apr 2001 14:56:59 GMT
View Forum Message <> Reply to Message

Martin Schultz wrote:
>
> "Richard G. French" wrote:
>>
>> David Fanning wrote:
>>>> dimensions = Size(myarray, /Dimensions)
>>>
>>> Cheers,
>>
>> David is the master of keywords - I've used SIZE all these years without
>> knowing that there was a /DIMENSIONS keyword. I guess the only way to
>> know about these things is to read through the documentation over and
>> over again and take notes on potentially useful keywords and options.
>>
>> Which brings me to my question - does anyone out there have a favorite

>> keyword on a routine that we mere mortals might not know about, but
>> which
>> might make our lives much easier? Any suggestions welcome, except for
>> HISTOGRAM and PLOT!
>>
>> Dick French
>
> Not a favorite keyword, but a favorite tool: Get a decent system (if
> you haven't one), install emacs with idlwave, run the routine-info
> collection, and then you have all the keywords you never knew but
> always dreamt about literally at your fingertips.

Similar to typing "?" at the IDL prompt and getting similar info - with examples no less!
Gasp!

paulv

--
Paul van Delst A little learning is a dangerous thing;
CIMSS @ NOAA/NCEP Drink deep, or taste not the Pierian spring;
Ph: (301)763-8000 x7274 There shallow draughts intoxicate the brain,
Fax:(301)763-8545 And drinking largely sobers us again.
paul.vandelst@noaa.gov Alexander Pope.

Subject: Re: array dimensions
Posted by James Kuyper on Mon, 09 Apr 2001 15:20:32 GMT
View Forum Message <> Reply to Message

David Fanning wrote:
>
> Richard G. French (rfrench@wellesley.edu) writes:
>
>> Now that you mention SMOOTH, one of my pet peeves is that
>> y=SMOOTH(array,n) gives an error message when n=1. There are lots of
>> instances where the degree of smoothing is calculated on the fly,
>> and one common instance is that you want no smoothing at all - i.e.
>> just give me the original array, unsmoothed. I've ended up writing
>> my own routine MYSMOOTH which is identical to smooth except that
>> it does not barf when n=1. Perhaps this has been changed recently,
>> but I don't think so. Does anyone have a good explanation for why
>> n=1 does not have the expected behavior of returning the array
>> unsmoothed? Or is there a keyword I have not been noticing that
>> can handle this case?
>
> Having had some modest experience these past few years
> writing programs for public consumption, allow me to
> make an observation or two.

>
> I don't know how it is done in the real world, but
> in my world a program idea is generated as a result
> of a problem I have encountered (usually more than once)
> in my own work. I come up with what I almost always
> mistakenly believe is a clever idea and I code it up.
>
> The program stays at this stage for some indeterminate
> amount of time, usually until someone runs into a similar
> problem and asks a question on the newsgroup. "Oh", I think,
> "I have a clever solution to *that* problem. I'll clean
> it up for them and offer it on my web page."
>
> In the course of "cleaning it up", I usually discover
> that my clever solution is really not as clever as I
> thought it was and that it tends to work only in the
> narrow confines of its original purpose. So I
> make it more general. In fact, I usually try to imagine
> all the ways it might be used.
>
> Now, I am known in some circles as having a pretty
> fertile imagination, but I have to admit that one of the
> things that would *never* occur to me if I was writing
> a SMOOTH function is that someone would use it if they
> *didn't* want to smooth anything. Are you sure it would
> have occurred to you?

It would have occurred to me; part of my group's standard testing routine is to check all boundary cases, which would have focused my attention on n=1. One of my own design rules is to avoid interpreting unusual values for arguments as errors unless I have to. I look for ways to interpret them as instructions to do something unusual (but consistent with the meaning attached to more normal values). Thus, I don't normally treat a count of 0 as an error, but as an instruction to process 0 of whatever is being counted; i.e., to skip processing.

Subject: Re: array dimensions
Posted by Alex Schuster on Mon, 09 Apr 2001 15:28:24 GMT
View Forum Message <> Reply to Message

"Richard G. French" wrote:

> David is the master of keywords - I've used SIZE all these years without
> knowing that there was a /DIMENSIONS keyword. I guess the only way to
> know about these things is to read through the documentation over and
> over again and take notes on potentially useful keywords and options.

True. And repeat that for every new version of IDL.

> Which brings me to my question - does anyone out there have a favorite
> keyword on a routine that we mere mortals might not know about, but
> which
> might make our lives much easier? Any suggestions welcome, except for
> HISTOGRAM and PLOT!

MIN() has the MAX keyword so you can compute both values in one step.
And it also allows a second parameter (I wonder why they didn't make
that a keyword) to return the (first) position the the minimum:

```
IDL> x = sin( findgen( 300 ) / 100 ) ; create array
IDL> print, where( x eq max( x ) )
       157
; another variant
IDL> tmp = max( x, pos ) & print, pos
       157
; and yet another:
IDL> print, !c
       157
```

Alex

--

Alex Schuster Wonko@weird.cologne.de PGP Key available
alex@pet.mpin-koeln.mpg.de