
Subject: Re: Removing fields from a structure

Posted by [Brian Larsen](#) on Thu, 01 Feb 2007 17:31:32 GMT

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I don't know that it is more elegant but it is built into solarsoft as
rem_tag.pro

```
[larsen@titan]~> cat /usr/local/ssw/gen/idl/struct/rem_tag.pro
;+
; Project    : HESSI
;
; Name       : REM_TAG
;
; Purpose    : remove tags from a structure
;
; Syntax     : NEW_STRUCT=REM_TAG(STRUCT,TAG)
;
; Inputs     : STRUCT = input structure (array or scalar)
;               : TAG = array of tag names or indexes to remove
;
; Outputs    : NEW_STRUCT = new structure
;
; Keywords   : NAME = new name for structure (use with care)
;
; Category   : Structure handling
;
; Written    : 1-Dec-02, Zarro (EER/GSFC)
;
; Modified   : 24-Dec-04, Zarro (L-3Com/GSFC)
;               - vectorized, and removed dangerous /free_mem
;               01-Feb-05, Csillaghy (Univ. Applied Sciences NW
Switzerland)
;               - changed n_elements( struct ) to size(struct /dim ),
see at the end.
;-
function
rem_tag,struct,tags,_extra=extra,quiet=quiet,err=err,name=na me
verbose=1-keyword_set(quiet)
-- bypass for older IDL versions
forward_function rem_tag2
if (1-since_version('5.4')) then begin
  if have_proc('rem_tag2') then $
    return,rem_tag2(struct,tags,_extra=extra,name=name,err=err)
```

```

message,'no longer supported for this version of IDL - '+!
version.release,/cont
if exist(struct) then return,struct else return,-1
endif

-- catch errors

err=""
error=0
catch,error
if error ne 0 then begin
  err=err_state()
if verbose then message,err,/cont
catch,/cancel
if exist(struct) then return,struct else return,-1
endif

if (1-is_struct(struct)) then begin
  err='invalid input'
pr_syntax,'new_struct=rem_tag(struct,tag_name)'
if exist(struct) then return,struct else return,-1
endif

sz=size(tags,/type)
index_input=(sz gt 1) and (sz lt 6)
string_input=(sz eq 7)
err='input tag names or tag indexes required'
if (not index_input) and (not string_input) then begin
  if verbose then message,err,/cont & return,struct
endif
if string_input and is_blank(tags) then begin
  if verbose then message,err,/cont & return,struct
endif

-- create structure template with tags removed

err=""
stag_names=tag_names(struct)
ntags=n_elements(stag_names) & stag_index=lindgen(ntags)
for i=0,ntags-1 do begin
  if string_input then chk=where(strup(tags) eq stag_names[i],count)
  else $
    chk=where(long(tags) eq stag_index[i],count)
  if count eq 0 then begin
    if is_struct(temp) then $
      temp=create_struct(temp,stag_names[i],struct[0].(i)) else $
        temp=create_struct(stag_names[i],struct[0].(i))
  endif

```

```

endfor

-- all tags removed

if not is_struct(temp) then return,-1

-- no tags removed

rtags=tag_names(temp)
if n_elements(rtags) eq ntags then return,struct

-- rename if requested

if is_string(name) then temp=create_struct(temp,name=strup(name))

dims_arr =size(struct, /dim)
if total(dims_arr) GT 1 then $
  temp=replicate2(temporary(temp),dims_arr)

struct_assign,struct,temp,/nozero

return,temp

end

```

Brian

Brian A. Larsen
 Dept. of Physics
 Space Science and Engineering Lab (SSEL)
 Montana State University - Bozeman
 Bozeman, MT 59717

On Feb 1, 10:27 am, "M. Katz" <MKatz...@yahoo.com> wrote:

- > I was wondering if there's a simple way to remove a field from a
- > structure?
- >
- > I can envision a manual way:
- > 0) creating a new structure variable for the result
- > 1) reading the original's tag names
- > 2) stepping through tag by tag using indexed value references, like a.
- > (i)
- > 3) using create_struct() to put the tags and values into the new

> structure, one by one, except for the tag(s) we're removing.

>

> Does anyone have a more elegant suggestion?

> M. Katz

Subject: Re: Removing fields from a structure

Posted by Allan Whiteford on Fri, 02 Feb 2007 02:48:31 GMT

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M. Katz wrote:

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> structure, one by one, except for the tag(s) we're removing.

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> M. Katz

>

Sorry, nothing more elegant from me. But here's some code I wrote a while ago which I think pretty much does what you've suggested.

pro remove_tag,struct,tagname

searchtag=strupcase(tagname)

tagnames=tag_names(struct)

a=[-1]

if n_elements(tagname) eq 1 then a=[a,where(tagnames \$

ne searchtag)] else for i=0,n_elements(tagnames)-1 do \$

if (where(searchtag eq tagnames[i]))[0] eq -1 then a=[a,i]

if n_elements(a) eq 1 then return

if a[1] eq -1 then return

newstruct=create_struct(tagnames[a[1]],struct.(a[1]))

if n_elements(a) gt 2 then for i=2,n_elements(a)-1 \$

do newstruct=create_struct(newstruct,tagnames[a[i]],struct.(a[i]))

struct=newstruct

end

tagname can be a string or string array. Removing multiple tags by calling the routine multiple times was a real time overhead which is why you can give it an array of tags. struct is the input structure which

will be modified on output.

Sorry about the lack of documentation, poor formatting and calling an important variable 'a'. I never distributed this code - it's still sitting around waiting to be put in to CVS to replace the old version which could only do one tag at a time.

The SSW code is probably better and I'm sure the loop gurus can remove the loops and possibly not call create_struct multiple times which is the big CPU time overhead.

Thanks,

Allan

Subject: Re: Removing fields from a structure

Posted by [R.Bauer](#) on Fri, 02 Feb 2007 10:30:33 GMT

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M. Katz wrote:

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>
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> M. Katz
>

Hi

so here are some very fast ones based on pointer operations which do work on sub structures too

`delete_tag`

http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase/delete_tag_dbase.pro.html

`add_tag`

http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase/add_tag_dbase.pro.html

replace_tag_value
http://www.fz-juelich.de/icg/icg-i/idl_icglidb/html/dbase/replace_tagvalue_dbase.pro.html

rename_tag
http://www.fz-juelich.de/icg/icg-i/idl_icglidb/html/dbase/rename_tag_dbase.pro.html

If you like to read examples in german may be you are interested in
reading a book about our library
http://www.fz-juelich.de/zb/datapool/page/439/00322_Bauer.pdf

cheers Reimar

--
Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-1)
Forschungszentrum Juelich
email: R.Bauer@fz-juelich.de

a IDL library at ForschungsZentrum Juelich
http://www.fz-juelich.de/icg/icg-i/idl_icglidb/html/dbase/intro.html

Subject: Re: Removing fields from a structure
Posted by [R.Bauer](#) on Fri, 02 Feb 2007 10:31:48 GMT
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; EXAMPLE:
; d = {A: 1, B: {B1: 0, B2: 1}, C: {B1: 0, B2: 1}}
;
; result = delete_tag(d, 'B')
; help, result, /str
; ** Structure <1342678>, 2 tags, length=8, refs=1:
; A INT 1
; C STRUCT -> <Anonymous> Array[1]
;
; result = delete_tag(d, ['B*'], SUB = 'C')
; help, result, /str
; ** Structure <13694a8>, 2 tags, length=6, refs=1:
; A INT 1
; B STRUCT -> <Anonymous> Array[1]
;
; result = delete_tag(d, '*B1', SUB = ['B', 'C'])
; help, result.b, /str
; ** Structure <1331be8>, 1 tags, length=2, refs=1:

```

; B2      INT      1
;
; result = delete_tag(d, ['B1', 'B2'], /ALL)
; help, result, /str
; ** Structure <170fac8>, 1 tags, length=2, refs=1:
; A      INT      1
;
; help,(delete_tag(d,'b1',sub_structure='B')).b,/str
; B2      INT      1
;
; help,delete_tag(d,'B',/all)
; ** Structure <140aa40>, 2 tags, length=6, refs=1:
; A      INT      1
; C      STRUCT  -> <Anonymous> Array[1]
;
; help,(delete_tag(d,'b1',sub_structure='B')).c,/str
; ** Structure <1333618>, 2 tags, length=4, refs=1:
; B1     INT      0
; B2     INT      1
;
; help,(delete_tag(d,'*',sub_structure='B')),/str
; ** Structure <133b2d8>, 2 tags, length=6, refs=1:
; A      INT      1
; C      STRUCT  -> <Anonymous> Array[1]
;
; help,(delete_tag(d,'*',sub_structure='B',/sort)),/str
; ** Structure <d40daa8>, 2 tags, length=6, refs=1:
; A      INT      1
; C      STRUCT  -> <Anonymous> Array[1]
;
; help,(delete_tag(d,sub_structure=['B','A'])),/str
; ** Structure <132fe78>, 2 tags, length=6, refs=1:
; A      INT      1
; C      STRUCT  -> <Anonymous> Array[1]
;
; help,(delete_tag(d,sub_structure=['B','C'])),/str
; ** Structure <1333288>, 1 tags, length=2, refs=1:
; A      INT      1
;
; help,(delete_tag(d,['B1','B2'],sub_structure=['B','C'])),/st r
; ** Structure <46a9498>, 1 tags, length=2, refs=1:
; A      INT      1
;
; d = {ABRA: {B1: 0, B2: 1}, ABRA2B: {B1: 0, B2: 1}, ABRA3B: {B1: 0,
B2: 1}}
;
; result=delete_tag(d,'abra')
; help,result,/str

```

```

; ** Structure <1365a48>, 2 tags, length=8, refs=1:
; ABRA2B      STRUCT  -> <Anonymous> Array[1]
; ABRA3B      STRUCT  -> <Anonymous> Array[1]
;
; result=delete_tag(d,'abra')
; help,result,/str
; RESULT      INT      =      -1
;
; result=delete_tag(d,'abra?B')
; help,result,/str
;
; ** Structure <1364358>, 1 tags, length=4, refs=1:
; ABRA      STRUCT  -> <Anonymous> Array[1]
;
; d = {ABRA: {B1: 0, B2: {A:1}}, ABRA2B: {B1: 0, B2: {A:1}}, ABRA3B:
; {B1: 0, B2: {A:1}}}
; result=delete_tag(d,'A',sub_structure='abra.b2')
; help,result.abra,/str
; ** Structure <1365c68>, 1 tags, length=2, refs=2:
; B1      INT      0
;
;
```

Reimar Bauer wrote:

> M. Katz wrote:

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>
> add_tag
> http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase/add_tag_dbase.pro.html
>
> replace_tag_value
> http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase/replace_tagvalue_dbase.pro.html
>
> rename_tag
> http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_source/idl_html/dbase/rename_tag_dbase.pro.html
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>
> cheers Reimar
>

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Reimar Bauer

Institut fuer Stratosphaerische Chemie (ICG-1)
Forschungszentrum Juelich
email: R.Bauer@fz-juelich.de

a IDL library at ForschungsZentrum Juelich
http://www.fz-juelich.de/icg/icg-i/idl_icglib/idl_lib_intro.html
