
Subject: Re: Controlling axis labels in IDL plots?
Posted by [Martin Schultz](#) on Thu, 13 Apr 2000 07:00:00 GMT
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Rachel Howe wrote:

>
> I wonder if anyone can help me with a graphics problem?
>
> I'm getting very finicky about my IDL plots. (I use direct graphics
> only, no objects --
> conceptually I'm still in the v3.6 era).
> I've learned to use the !p, !x and !y system variables, their associated
> keywords,
> and the axis command, to override most of the defaults, but one thing
> eludes me.
> Does anyone know how the distance of the axis label from the axis is
> determined in a single-panel 2d plot?
> There doesn't seem to be any way to control it directly, but it must be
> some arcane function of the plot area, position/margin settings, and
> character size. If anyone knows an algorithm, I'd be delighted to hear
> it.
> Or would it be easier to give up and just use
> XYOUTS to put the annotations where I want them?
>
> Thanks in advance for any suggestions!
>
>
> --
> Rachel Howe
> National Solar Observatory, Tucson AZ
> rhowe@noao.edu

Rachel,

perhaps you can make use of my axlabel routine which I attach. I haven't used it that extensively and cannot guarantee for bug freeness, but it should at least provide you with some algorithm for finding label positions. I have only used it with Hershey fonts, and I have no idea how it behaves with Truetype or Hardware fonts. Any suggestions for improvements are welcome.

Regards,
Martin

--

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```

;      determined automatically.
;
;
; OUTPUTS:
;   Axis labels without fuss.
;
; SUBROUTINES:
;   None.
;
; REQUIREMENTS:
;   A DATA coordinate system must be established by a previous
;   PLOT command.
;
; NOTES:
;   AXLABEL currently operates only on the left and bottom axes.
;
; EXAMPLE:
;   xrange = [0.3,3.0] ; define axis range
;   yrange = [0.3,3.0]
;   plot,[1],xr=xrange,yr=yrange, $ ; do the plot
;   title='Logarithmic X axis, Logarithmic Y axis',$
;   xtckf='(a1)',ytckf='(a1)', /ylog,/xlog
;   ; important: turn the tick labeling off with ?tickformat='(A1)'
;   xlblv = loglevels(xrange) ; get nice label values (0.5, 1., 2.)
;   ylblv = loglevels(yrange)
;   xlabel,xlblv, /xaxis ; plot the labels
;   xlabel,ylblv, /yaxis
;
; MODIFICATION HISTORY:
;   mgs, 10 Sep 1999: VERSION 1.00
;   mgs, 23 Sep 1999: - bug fix for log-log plots
;
;-----
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; please contact the author.
; Bugs and comments should be directed to martin.schultz@dkrz.de
; with subject "IDL routine xlabel"
;-----

pro xlabel,value,Charsize=Charsize,XAxis=XAxis,YAxis=YAxis, $
  Format=Format,_EXTRA=e

```

```

; Error catching
if (N_Elements(VALUE) eq 0) then begin
    message,'Must supply at least one label value to AXLABEL!'
endif

; Set default for CHARSIZE and FORMAT
if (n_elements(CHARSIZE) EQ 0) then $
    CHARSIZE = 1.
if (n_elements(FORMAT) EQ 0) then $
    FORMAT = '(f12.1)'

if (keyword_set(XAxis)) then begin

    ; Get y position for label
    ; Subtract one character size
    PY = !Y.Window[0]
    PYOFF = CONVERT_COORD(1,!D.Y_CH_SIZE*CHARSIZE,/DEVICE,/TO_NORMAL)
    PY = PY - 1.05*PYOFF[1]
print,'X:PY:',py
    PY = REPLICATE(PY,N_Elements(VALUE))

    ; Convert data values to normalized x coordinates
    Y0 = !Y.CRANGE[0]
    if (!Y.TYPE eq 1) then $
        Y0 = 10.^Y0
    PX = CONVERT_COORD(VALUE,REPLICATE(Y0,N_Elements(VALUE)), $
        /DATA,/TO_NORMAL)
    PX = PX[0,*]
print,'X:PX=',px

endif else begin ; Y axis label (default)

    ; Get x position for label
    PX = !X.Window[0] - 0.010
    PX = REPLICATE(PX,N_Elements(VALUE))

    ; Convert data values to normalized coordinates and
    ; subtract half the character size
    PYOFF = CONVERT_COORD(0,!D.Y_CH_SIZE*CHARSIZE,/DEVICE,/TO_NORMAL)
    X0 = !X.CRANGE[0]
    if (!X.TYPE eq 1) then $
        X0 = 10.^X0
    PY = CONVERT_COORD(REPLICATE(X0,N_Elements(VALUE)),VALUE, $
        /DATA,/TO_NORMAL)
    PY = PY[1,*]-0.5*PYOFF[1]
endif

; Format VALUE according to format string. If this string

```

```
; does not begin with '(', it is assumed that the user has passed
; a formatting function as for [XYZ]TICKFORMAT
; However, only the third (NUMBER) argument of this function is used
if (STRPOS(FORMAT,'(') ne 0) then begin
  ValS = STRARR(N_Elements(VALUE))
  for j=0,N_Elements(VALUE)-1 do $
    ValS[j] = CALL_FUNCTION(FORMAT,0,0,VALUE[j])
endif else $ ; apply format string directly
  ValS = STRING(VALUE,format=FORMAT)
```

```
ValS = STRTRIM(ValS,2)
```

```
XYOUTS,PX,PY,ValS,/NORMAL,align=1.-0.5*keyword_set(XAxis), $
  charsize=CHARSIZE,_EXTRA=e
```

```
return
end
```

File Attachments

1) [axlabel.pro](#), downloaded 104 times
