

The showcharinbox package

<https://github.com/vafa/showcharinbox>

Vafa Khalighi
vafakhlgh@gmail.com

Version 0.1 July 13, 2012

How to file bug reports and follow development of **showcharinbox** package

The **showcharinbox** package is developed on: <https://github.com/vafa/showcharinbox>. Users are encouraged to offer suggestions and file bug reports on the github issue tracker: <https://github.com/vafa/showcharinbox/issues>.

Contents

1	What does the showcharinbox package do?	1	package	2
2	Implementation of showcharinbox	3	Index	5

1 What does the **showcharinbox** package do?

This package defines the command `\ShowCharInBox` which has the following syntax:

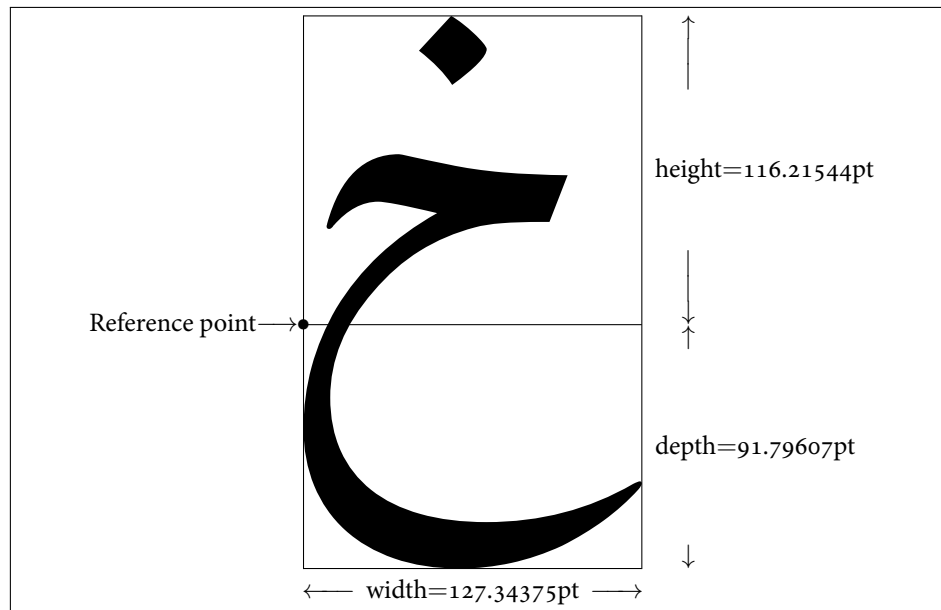
`\ShowCharInBox{<character>}`

This will show *<character>* inside a box showing its height, depth, and width information.

```

1 \documentclass{article}
2 \usepackage{fontspec}
3 \newfontfamily\testfont{XB Yas}
4 \usepackage{showcharinbox}
5 \begin{document}
6 \begin{center}
7 \ShowCharInBox{\fontsize{200}{210}\testfont \char"FEA5}
8 \end{center}
9 \end{document}

```



2 Implementation of showcharinbox package

```

1 \NeedsTeXFormat{LaTeX2e}
2 \newcommand*\showcharinbox@date{2012/07/25}
3 \newcommand*\showcharinbox@version{v0.1}
4 \ProvidesPackage{showcharinbox}
5     [\showcharinbox@date\space \showcharinbox@version\space
6     Showing characters inside a box]
7 \newdimen\showcharinbox@charwidth
8 \newdimen\showcharinbox@charheight
9 \newdimen\showcharinbox@chardepth
10 \newbox\showcharinbox@bigdot
11 \newbox\showcharinbox@smalldot

```

Macros for drawing figures:

```

12 \newcommand*\showcharinbox@hidehrule[2]{%
13 \kern-#1\hrule height#1 depth#2 \kern-#2 }
14 \newcommand*\showcharinbox@hidevrule[2]{\kern-#1{\dimen0=#1

```

```

15 \advance\dimen0 by#2\vrule width\dimen0}\kern-#2 }
\showcharinbox@makeblankbox puts rules at the edges of a blank box whose di-
mensions are those of \box0 (assuming nonnegative width, height, and depth). Argu-
ment 1 is rule thickness outside, and argument 2 is rule thickness inside:
16 \newcommand*\showcharinbox@makeblankbox}[2]{\hbox{\lower\dp0\vbox{\showcharinbox@ht0
overlap the rules at the corners:
17 \kern-#1%
18 \hbox to\wd0{\showcharinbox@hidevrule{#1}{#2}%
set the vrule height:
19 \raise\ht0\vbox to #1{}}%
set the vrule depth:
20 \lower\dp0\vtop to #1{}}%
21 \hfil\showcharinbox@hidevrule{#2}{#1}}%
22 \kern-#1\showcharinbox@hidehrule{#2}{#1}}}%
23 \newcommand*\showcharinbox@maketypebox{\showcharinbox@makeblankbox{0pt}{1pt}}
24 \newcommand*\showcharinbox@makelightbox{\showcharinbox@makeblankbox{.2pt}{.2pt}}
\box\showcharinbox@bigdot is a null box with a bullet at its reference point.
\ht0 is the axis height:
25 \setbox0=\hbox{$\vcenter{}}$ %
bullet is centered on the axis:
26 \setbox1=\hbox to\z@{$\hss\bullet\hss}$ %
27 \setbox\showcharinbox@bigdot=\vbox to\z@{\kern-\ht1 \kern\ht0 \box1 \vss}
\cdot is centered on the axis:
28 \setbox1=\hbox to\z@{$\hss\cdot\hss}$ %
29 \setbox\showcharinbox@smalldot=\vbox to\z@{\kern-\ht1 \kern\ht0 \box1 \vss}
\showcharinbox@arrows makes things like ← text →:
30 \newcommand*\showcharinbox@arrows}[2]{%
Argument 1 is width and argument 2 is text:
31 {\setbox0=\hbox{$\mkern-2mu\mathord-\mkern-2mu$}
32 \hbox to #1{\kern-.055556em$\leftarrow\mkern-6mu$%
33 \cleaders\copy0\hfil
34 \kern.4em #2\kern.4em
35 \cleaders\copy0\hfil
36 $\mkern-6mu\rightarrow\mkern-.055556em$}}
\showcharinbox@samplebox makes the outline of a box, with big dot at reference
point. Argument 1 is height, argument 2 is depth, argument 3 is width, and argument4 is
text:
37 \newcommand*\showcharinbox@samplebox}[4]{%
38 {\setbox0=\vtop{\vbox to #1{\hbox to #3{\vss}
39 \nointerlineskip
Now \box0 has the desired height, depth, and width:
40 \vbox to #2{}}%
41 \hbox{\copy\showcharinbox@bigdot
42 \vrule height.2pt depth.2pt width#3%
43 \kern-#3%

```

```

44 \showcharinbox@makelightbox
45 \kern-#3%
46 \raise#1\vbox{\hbox to #3{\hss#4\hss}
47 \kern 3pt}}}}

```

```

48
49 \newcommand{\ShowCharInBox}[1]{%
50 \setbox9=\hbox{#1}
51 \setlength{\showcharinbox@chardepth}{\dp9}
52 \setlength{\showcharinbox@charheight}{\ht9}
53 \setlength{\showcharinbox@charwidth}{\wd9}
54 \setbox0=\hbox{$\uparrow$}

```

With luck, they'll line up:

```

55 \setbox1=\hbox to \wd0{$\hss\mid\hss$} %
56 \setbox2=\vbox to \showcharinbox@charheight{\copy0
57 \nointerlineskip \kern-.5pt \copy1
58 \nointerlineskip \kern-.5pt \copy1
59 \vfil
60 \moveleft 1em\hbox{height$=$\the\showcharinbox@charheight}
61 \vfil
62 \copy1 \nointerlineskip \kern-.5pt
63 \copy1 \nointerlineskip \kern-.5pt
64 \hbox{$\downarrow$}
65 \kern.2pt}
66 \setbox3=\vbox to \showcharinbox@chardepth{\kern.2pt\copy0
67 \vfil
68 \moveleft 1em\hbox{depth$=$\the\showcharinbox@chardepth}
69 \vfil
70 \hbox{$\downarrow$}
71 \kern0pt}

```

This cancels the null text above the \showcharinbox@samplebox:

```

72 \setbox4=\vtop{\kern-3pt %
73 \hbox{\showcharinbox@samplebox{\showcharinbox@charheight}{\showcharinbox@chardepth}
74 \kern-\showcharinbox@charwidth
75 \hbox to \showcharinbox@charwidth{\hss \unhbox9\hss}}
76 \kern3pt
77 \showcharinbox@arrows{\showcharinbox@charwidth}{width$=$\the\showcharinbox@charwid
78 \medskip\indent

```

\ht0 is the axis height:

```

79 \setbox0=\hbox{$\vcenter{}}$}%
80 \lower\ht0\hbox{Reference point$-$\kern-.2em$\rightarrow$\kern2pt}%
81 \raise\ht2\box4
82 \kern1.5em
83 \raise\ht2\vtop{\kern0pt\box2\nointerlineskip\box3}}

```

3 Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

A		M	<code>\showcharinbox@date</code>
<code>\advance</code>	15	<code>\mathord</code>	31
B		<code>\medskip</code>	78
<code>\box</code>	27, 29, 81, 83	<code>\mid</code>	55
<code>\bullet</code>	26	<code>\mkern</code>	31, 32, 36
C		<code>\moveleft</code>	60, 68
<code>\cdot</code>	28	N	
<code>\cleaders</code>	33, 35	<code>\NeedsTeXFormat</code> ...	1
<code>\copy</code>	33, 35, 41, 56, 57, 58, 62, 63, 66	<code>\newbox</code>	10, 11
D		<code>\newcommand</code>	2, 3, 12, 14, 16, 23, 24, 30, 37, 49
<code>\dimen</code>	14, 15	<code>\newdimen</code>	7, 8, 9
<code>\downarrow</code>	64, 70	<code>\nointerlineskip</code>	39, 57, 58, 62, 63, 83
<code>\dp</code>	16, 20, 51	P	
H		<code>\ProvidesPackage</code> ..	4
<code>\hbox</code> 16, 18, 25, 26, 28, 31, 32, 38, 41, 46, 50, 54, 55, 60, 64, 68, 70, 73, 75, 79, 80		R	
<code>\hfil</code>	21, 33, 35	<code>\raise</code>	19, 46, 81, 83
<code>\hrule</code>	13	<code>\rightarrow</code>	36, 80
<code>\hss</code>	26, 28, 46, 55, 75	S	
<code>\ht</code> 19, 27, 29, 52, 80, 81, 83		<code>\setbox</code> ..	25, 26, 27, 28, 29, 31, 38, 50, 54, 55, 56, 66, 72, 79
I		<code>\setlength</code> ..	51, 52, 53
<code>\indent</code>	78	<code>\ShowCharInBox</code> ...	49
K		<code>\showcharinbox@arrows</code>	30, 77
<code>\kern</code> 13, 14, 15, 17, 22, 27, 29, 32, 34, 36, 43, 45, 47, 57, 58, 62, 63, 65, 66, 71, 72, 74, 76, 80, 82, 83		<code>\showcharinbox@bigdot</code>	10, 27, 41
L		<code>\showcharinbox@chardepth</code>	9, 51, 66, 68, 73
<code>\leftarrow</code>	32	<code>\showcharinbox@charheight</code>	8, 52, 56, 60, 73
<code>\lower</code>	16, 20, 80	<code>\showcharinbox@charwidth</code>	7, 53, 73, 74, 75, 77
		<code>\showcharinbox@date</code>	2, 5
		<code>\showcharinbox@hidehrule</code>	12, 16, 22
		<code>\showcharinbox@hidevrule</code>	14, 18, 21
		<code>\showcharinbox@makeblankbox</code>	16, 23, 24
		<code>\showcharinbox@makelightbox</code>	24, 44
		<code>\showcharinbox@maketypebox</code>	23
		<code>\showcharinbox@samplebox</code>	37, 73
		<code>\showcharinbox@smalldot</code>	11, 29
		<code>\showcharinbox@version</code>	3, 5
		<code>\space</code>	5
		T	
		<code>\the</code>	60, 68, 77
		U	
		<code>\unhbox</code>	75
		<code>\uparrow</code>	54
		V	
		<code>\vbox</code>	16, 19, 27, 29, 38, 40, 46, 56, 66
		<code>\vcenter</code>	25, 79
		<code>\vfil</code>	59, 61, 67, 69
		<code>\vrule</code>	15, 42
		<code>\vss</code>	27, 29, 38
		<code>\vtop</code>	20, 38, 72, 83
		W	
		<code>\widetext</code>	18, 53, 55
		Z	
		<code>\z@</code>	26, 27, 28, 29