

## NAME

**xdvi** – DVI Previewer for the X Window System

## SYNOPSIS

**xdvi** [+*page*] [**--help**] [**--allowshell**] [**--altfont** *font*] [**--bg** *color*] [**--browser** *WWWbrowser*] [**--copy**] [**--cr** *color*] [**--debug** *bitmask*[*string*[,*string* ...]]] [**--display** *host:display*] [**--dvipspath** *path*] [**--editor** *command*] [**--expert**] [**--expertmode** *flag*] [**--fg** *color*] [**--findstring** *string*] [**--text-encoding** *encoding*] [**--font** *font*] [**--fullscreen**] [**--gamma** *g*] [**--geometry** *geometry*] [**--gsalpha**] [**--gspalette** *palette*] [**--h**] [**--help**] [**--hl** *color*] [**--anchorposition** *anchor*] [**--hush**] [**--hushchars**] [**--hushchecksums**] [**--warnpecials**] [**--hushstdout**] [**--hushbell**] [**--icongeometry** *geometry*] [**--iconic**] [**--install**] [**--interpreter** *path*] [**--keep**] [**--l**] [**--license**] [**--linkcolor** *color*] [**--linkstyle** *0/1/2/3*] [**--margins** *dimen*] [**--mfmode** *mode-def[:dpi]*] [**--mgs**[*n*] *size*] [**--mousemode** *0/1/2*] [**--nocolor**] [**--nofork**] [**--noghostscript**] [**--nogrey**] [**--nogssafer**] [**--noinstall**] [**--nomakepk**] [**--nomatchinverted**] [**--noomega**] [**--noscan**] [**--notype1fonts**] [**--notempfile**] [**--offsets** *dimen*] [**--p** *pixels*] [**--paper** *paper**type*] [**--pause**] [**--pausespecial** *special-string*] [**--postscript** *flag*] [**--rulecolor** *color*] [**--rv**] [**--S** *density*] [**--s** *shrink*] [**--safer**] [**--sidemargin** *dimen*] [**--sourceposition** *line[:col]*[*filename*] [**--statusline**] [**--thorough**] [**--topmargin** *dimen*] [**--unique**] [**--version**] [**--visitedlinkcolor** *color*] [**--warnspecials**] [**--watchfile** *secs*] [**--wheelunit** *pixels*] [**--xoffset** *dimen*] [**--yoffset** *dimen*] [*dvi\_file*]

## DESCRIPTION

**Xdvi** is a program for previewing *dvi* files, as produced e.g. by the **tex**(1) program, under the X window system.

**Xdvi** can show the file shrunk by various integer factors, and it has a “magnifying glass” for viewing parts of the page enlarged (see the section MAGNIFIER below). This version of **xdvi** is also referred to as **xdvik** since it uses the kpathsea library to locate and generate font files. In addition to that, it supports the following features:

- hyperlinks in DVI files (section HYPERLINKS),
- direct rendering of PostScript<tm> Type 1 fonts (section TYPE 1 FONTS),
- source specials in the DVI file (section SOURCE SPECIALS),
- string search in DVI files (section STRING SEARCH),
- saving or printing (parts of) the DVI file (sections PRINT DIALOG and SAVE DIALOG).

**Xdvi** can be compiled with the Motif toolkit or the Xaw (Athena) toolkit (and variants of it), and the Motif version has a slightly different GUI; these differences are noted below.

Before displaying a page of a DVI file, **xdvi** will check to see if the file has changed since the last time it was displayed. If this is the case, it will reload the file. This feature allows you to preview many versions of the same file while running **xdvi** only once. Since it cannot read partial DVI files, **xdvik** versions starting from 22.74.3 will create a temporary copy of the DVI file being viewed, to ensure that the file can be viewed without interruptions. (The **--notempfile** can be used to turn off this feature).

**Xdvi** can show PostScript<tm> specials by any of three methods. It will try first to use Display PostScript<tm>, then NeWS, then it will try to use Ghostscript to render the images. All of these options depend on additional software to work properly; moreover, some of them may not be compiled into this copy of **xdvi**.

For performance reasons, **xdvi** does not render PostScript specials in the magnifying glass.

If no file name has been specified on the command line, `xdvi` will try to open the most recently opened file; if the file history (accessible via the **File > Open Recent** menu) is empty, or if none of the files in the history are valid DVI files, it will pop up a file selector for choosing a file name. (In previous versions, which didn't have a file history, the file selector was always used; you can set the X resource `noFileArgUseHistory` to `false` to get back the old behaviour.)

## OPTIONS

In addition to specifying the *dvi* file (with or without the **.dvi** extension), **xdvi** supports the following command line options. If the option begins with a '+' instead of a '-', the option is restored to its default value. By default, these options can be set via the resource names given in parentheses in the description of each option.

**+page** Specifies the first page to show. If + is given without a number, the last page is assumed; the first page is the default.

**-allowshell**

(**.allowShell**) This option enables the shell escape in PostScript specials. (For security reasons, shell escapes are disabled by default.) This option should be rarely used; in particular it should not be used just to uncompress files: that function is done automatically if the file name ends in **.Z**, **.gz**, or **.bz2**. Shell escapes are always turned off if the **-safer** option is used.

**-altfont** *font*

(**.altFont**) Declares a default font to use when the font in the *dvi* file cannot be found. This is useful, for example, with PostScript <tm> fonts.

**-background** *color*

(**.background**) Determines the color of the background. Same as **-bg**.

**-bg** *color*

(**.background**) Determines the color of the background.

**-browser** *browser*

(**.wwwBrowser**) Defines the web browser used for handling external URLs. The value of this option or resource has the same syntax as the **BROWSER** environment variable; see the explanation of that variable in the section 'ENVIRONMENT' below for a detailed description. If neither the option nor the X resource *wwwBrowser* is specified, the environment variables **BROWSER** and **WWWBROWSER** (in that order) are used to determine the browser command. If these are not set either, the following default value is used: **xdg-open %s:htmlview %s:firefox -remote -remote "openURL(%s,new-window)":mozilla -remote "openURL(%s,new-window)":netscape -raise -remote "openURL(%s,new-window)":xterm -e w3m %s:xterm -e lynx %s:xterm -e wget %s**

**-copy** (**.copy**) Always use the *copy* operation when writing characters to the display. This option may be necessary for correct operation on a color display, but overstrike characters will be incorrect. If greyscale anti-aliasing is in use, the **-copy** operation will disable the use of colorplanes and make overstrikes come out incorrectly. See also **-thorough**.

**-cr** *color*

(**.cursorColor**) Determines the color of the mouse cursor. The default is the same as the foreground color.

**-debug** *bitmask/string[,string ...]*

(**.debugLevel**) If nonzero, prints additional information on standard output. The argument can be either a bitmask specified as a decimal number, or comma-separated list of strings.

For the bitmask representation, multiple values can be specified by adding the numbers that represent the individual bits; e.g. to debug all file searching and opening commands, use 4032 (= 2048 + 1024 + 512 + 256 + 128 + 64). Use -1 to turn on debugging of everything (this will produce huge output).

For the string representation, use the strings listed in the following table, with a comma to separate the values; e.g. to debug all file searching and opening commands, use **search,expand,paths,hash,stat,open**. (The option ‘kpathsea’ is provided as a shorthand for these.) Note that such a list may need to be quoted to prevent the shell from interpreting commas or spaces in the list.

The individual numbers and strings have the following meanings:

1	bitmap	Bitmap creation
2	dvi	DVI translation
4	pk	PK fonts
8	batch	Batch mode: Exit after reading the DVI file
16	event	Event handling
32	ps	PostScript interpreter calls
64	stat	Kpathsea stat(2) calls
128	hash	Kpathsea hash table lookups
256	open	Kpathsea file opening
512	paths	Kpathsea path definitions
1024	expand	Kpathsea path expansion
2048	search	Kpathsea searching
4032	kpathsea	All Kpathsea options
4096	htex	Hypertex specials
8192	src	Source specials
16384	client	Client/server mode (see -unique and -sourceposition options)
32768	ft	FreeType library messages (Type 1 fonts)
65536	ft_verbose	Verbose FreeType library messages (currently unused)
131072	gui	GUI elements

Some of the Kpathsea debugging options are actually provided by Kpathsea; see the Debugging section in the Kpathsea manual for more information on these.

**-density** *density*

(**.densityPercent**) Determines the density used when shrinking bitmaps for fonts. A higher value produces a lighter font. The default value is 40. If greyscaling is in use, this argument does not apply; use **-gamma** instead. See also the ‘S’ keystroke. Same as **-S**.

**-display** *host:display*

Specifies the host and screen to be used for displaying the *dvi* file. By default this is obtained from the environment variable **DISPLAY**.

**–dvipspath** *path*

(**.dvipsPath**) Use *path* as the **dvips** program to use when printing. The default for this is **dvips**. The program or script should read the DVI file from standard input, and write the PostScript file to standard output.

**–editor** *editor*

(**.editor**) Specifies the editor that will be invoked when the *source-special()* action is triggered to start a reverse search (by default via Ctrl-Mouse 1). The argument to this option is a format string in which occurrences of “%f” are replaced by the file name, occurrences of “%l” are replaced by the line number within the file, and optional occurrences of “%c” are replaced by the column number within the line.

If neither the option nor the X resource *.editor* is specified, the following environment variables are checked to determine the editor command: **XEDITOR**, **VISUAL**, and **EDITOR** (in this sequence). If the string is found as the value of the **VISUAL** or **EDITOR** environment variables, then “*xterm -e*” is prepended to the string; if the editor is specified by other means, then it must be in the form of a shell command to pop up an X window with an editor in it. If none of these variables is set, a warning message is displayed and the command “*xterm -e vi +%l %f*” is used.

If no “%f” or “%l” occurs in the string, the missing format strings are appended automatically. (This is for compatibility with other programs when using one of the environment variables).

A new instance of the editor is started each time this command is used; therefore it is preferable to use an editor that can be invoked in ‘client’ mode to load new files into the same instance. Example settings are:

**emacsclient --no-wait**

(older Emacsen)

**gnuclient -q**

(XEmacs and newer Emacsen)

**gvim --servername xdvi --remote**

(VIM v6.0+; the ‘--servername xdvi’ option will cause gvim to run a dedicated instance for the files opened by xdvi.)

**nc** (nedit)

Note that those strings need to be enclosed into quotes when using them on the command-line to protect them from the shell; when using them as argument for the *.editor* resource in an X resource file, no quotes should be used.

**NOTE ON SECURITY:** The argument of this option isn’t executed as a shell command, but via *exec()* to prevent evil tricks with the contents of source specials.

**–expert**

This option is only supported for backwards compatibility; it is equivalent to **–expert-mode 0**, which should be preferred.

**-expertmode** *flag*

(**.expertMode**) With an argument of *0*, this option switches off the display of the buttons, scrollbars, the toolbar (Motif only), the statusline and the page list. These GUI elements can also be (de)activated separately, by combining the appropriate values in the *flag* argument. This acts similar to the **-debug** option: The integer *flag* is treated as a bitmap where each bit represents one element. If the bit has the value *1*, the element is switched on, if it has the value *0*, the element is switched off. The meaning of the bits is as follows:

1	statusline
2	scrollbars
4	Motif: pagelist, Xaw: buttons and pagelist
8	toolbar (Motif only)
16	menubar (Motif only)

For example, to turn on only the statusline and the scrollbars, use 3 (= 1 + 2). See also the 'x' keystroke, where the bits are addressed by their positions, from 1 to 3 (Xaw) or 5 (Motif), respectively.

If the statusline is not active, all messages that would normally be printed to the statusline will be printed to *stdout*, unless the **-hushstdout** option is used.

**-fg** *color*

(**.foreground**) Determines the color of the text (foreground).

**-text-encoding** *encoding*

(**.textEncoding**) Use *encoding* as text encoding of the string in the "Find" window. Usually, this shouldn't be needed since the encoding is determined from the locale settings.

**-findstring** *string*

This option triggers a search for *string* in the DVI file mentioned on the command-line, similar to forward search (see the description of the **sourceposition** option): If there is already another instance of **xdvi** running on the displaying that DVI file, it will cause that instance to perform the search instead. The search starts at the top of the current page of the DVI file.

**-font** *font*

(**\*font**) Sets the font used in menus, buttons etc., as described in the X(7x) man page. The font for child windows can be set separately, e.g.:

```
xdvi*statusline*font: \
  *-helvetica-medium-r-*-12-*-*-*-*
```

**-foreground** *color*

Same as **-fg**.

**-fullscreen**

When this option is used, **xdvi** will (try to) run in fullscreen mode, with no window decorations. This option is not guaranteed to work with all windowmanagers/desktops; if you're experiencing problems with it, please use the **-geometry** option instead, and a suitable window manager setting to remove the window decorations. When using this option for presentations, you might want to get rid of all the control widgets as well, using the **-expertmode** option. This option can also be toggled at runtime using the **fullscreen** action (by default bound to Ctrl-I).

**-gamma** *gamma*

(**.gamma**) Controls the interpolation of colors in the greyscale anti-aliasing color palette. Default value is 1.0. For  $0 < \textit{gamma} < 1$ , the fonts will be lighter (more like the background), and for  $\textit{gamma} > 1$ , the fonts will be darker (more like the foreground). Negative values behave the same way, but use a slightly different algorithm. For color and grayscale displays; for monochrome, see **-density**. See also the ‘S’ keystroke.

**-geometry** *geometry*

(**.geometry**) Specifies the initial geometry of the main window, as described in the *X(7x)* man page. The geometry of child windows can be set separately, e.g.:  
*xdvi\*helpwindow.geometry: 600x800*

**-gsalpha**

(**.gsAlpha**) Causes **Ghostscript** to be called with the **x11alpha** driver instead of the **x11** driver. The **x11alpha** driver enables anti-aliasing in PostScript specials, for a nicer appearance. It is available on newer versions of **Ghostscript**. This option can also be toggled with the ‘V’ keystroke.

**-gspalette** *palette*

(**.palette**) Specifies the palette to be used when using Ghostscript for rendering PostScript specials. Possible values are **Color**, **Greyscale**, and **Monochrome**. The default is **Color**.

**-h, -help, --help**

Prints a short help text with an overview of the command-line options to standard output.

**-hl** *color*

(**.highlight**) Determines the color of the page border, of the ruler in ‘ruler mode’, and of the highlighting markers in forward search and string search. The default is the foreground color.

**-anchorposition** *anchor*

Jump to *anchor* after opening the DVI file. This is only useful when invoking **xdvi** from other applications.

**-hush** (**.Hush**) Causes **xdvi** to suppress all suppressible warnings.**-hushchars**

(**.hushLostChars**) Causes **xdvi** to suppress warnings about references to characters which are not defined in the font.

**-hushchecksums**

(**.hushChecksums**) Causes **xdvi** to suppress warnings about checksum mismatches between the *dvi* file and the font file.

**-hushstdout**

(**.hushStdout**) Suppresses printing of status messages to *stdout*. Note that errors or warnings will still be printed to *stderr* even if this option is used.

**-hushbell**

(**.hushBell**) Don’t sound the X bell when an error occurs.

**-icongeometry** *geometry*

(**.iconGeometry**) Specifies the initial position for the icon.

**-iconic** (**.iconic**) Causes the **xdvi** window to start in the iconic state. The default is to start with the window open.

**-install**

(**.install**) If **xdvi** is running under a **PseudoColor** visual, then (by default) it will check for **TrueColor** visuals with more bits per pixel, and switch to such a visual if one exists. If no such visual exists, it will use the current visual and colormap. If **-install** is selected, however, it will still use a **TrueColor** visual with a greater depth, if one is available; otherwise, it will install its own colormap on the current visual. If the current visual is not **PseudoColor**, then **xdvi** will not switch the visual or colormap, regardless of its options. The default value of the **install** resource is the special value, **maybe**. There is no **+install** option. See also **-noinstall**, and the GREYSCALING AND COLORMAPS section.

**-interpreter** *filename*

(**.interpreter**) Use *filename* as the Ghostscript interpreter. By default it uses **gs**.

**-keep** (**.keepPosition**) Sets a flag to indicate that **xdvi** should not move to the home position when moving to a new page. See also the ‘**k**’ keystroke. This flag is honored by all page switching actions and by **up-or-previous()** / **down-or-next()**, although the latter only honor the horizontal position, not the vertical one. This allows for a "continuous" scrolling back and forth through a document with a display window narrower than a page width.

**-l** (**.listFonts**) List the names of all fonts used.

**-license**

Prints licensing information.

**-linkcolor**

(**.linkColor**) Color used for unvisited hyperlinks (‘Blue2’ by default). Hyperlinks are unvisited before you click on them, or after the DVI file has been reloaded. The value should be either a valid X color name (such as *DarkGoldenrod4*) or a hexadecimal color string (such as *#8b6508*). See also **-visitedlinkcolor** and **-linkstyle**.

**-linkstyle**

(**.LinkStyle**) Determines the style in which hyperlinks are displayed. Possible values and their meanings are:

0	No highlighting of links
1	Underline links with <i>link color</i>
2	No underlining, color text with <i>link color</i>
3	Underline and display text colored with <i>link color</i>

The values for *link color* are specified by the options/resources **-linkcolor** and **-visitedlinkcolor** (which see).

**-margins** *dimen*

(**.Margin**) Specifies the size of both the top margin and side margin. This determines the “home” position of the page within the window as follows. If the entire page fits in the window, then the margin settings are ignored. If, even after removing the margins

from the left, right, top, and bottom, the page still cannot fit in the window, then the page is put in the window such that the top and left margins are hidden, and presumably the upper left-hand corner of the text on the page will be in the upper left-hand corner of the window. Otherwise, the text is centered in the window. The dimension should be a decimal number optionally followed by any of the two-letter abbreviations for units accepted by T<sub>E</sub>X (**pt**, **pc**, **in**, **bp**, **cm**, **mm**, **dd**, **cc**, or **sp**). By default, the unit will be **cm** (centimeters). See also **–sidemargin**, **–topmargin**, and the keystroke ‘**M**.’

**–mfmode** *mode-def*

(**.mfMode**) Specifies a *mode-def* string, which can be used in searching for fonts (see ENVIRONMENT, below). Generally, when changing the *mode-def*, it is also necessary to change the font size to the appropriate value for that mode. This is done by adding a colon and the value in dots per inch; for example, **–mfmode ljfour:600**. This method overrides any value given by the **pixelsPerInch** resource or the **–p** command-line argument. The metafont mode is also passed to **metafont** during automatic creation of fonts. By default, it is **unspecified**.

**–mgs** *size*

Same as **–mgs1**.

**–mgs**[*n*] *size*

(**.magnifierSize**[*n*]) Specifies the size of the window to be used for the “magnifying glass” for Button *n*. The size may be given as an integer (indicating that the magnifying glass is to be square), or it may be given in the form *widthxheight*. See the MOUSE ACTIONS section. Defaults are 200x150, 400x250, 700x500, 1000x800, and 1200x1200.

**–mousemode** [*0|1|2*]

(**.mouseMode**) Specifies the default mode of xdvi at startup: Magnifier (0), Text Selection Mode (1) or Ruler Mode (2). See the section **MODES**, below, for more information.

**–nocolor**

(**.color**) Turns off the use of color specials. This option can be toggled with the ‘**C**’ keystroke. (Note: **–nocolor** corresponds to **color:off**; **+nocolor** to **color:on**.)

**–nofork**

(**.fork**) With the **–sourceposition** and **–unique** options, the default behavior is for **xdvi** to put itself into the background (like a daemon) if there is no appropriate instance of **xdvi** already running. This argument makes it run in the foreground instead. This is useful for debugging, or if your client application cannot deal well with a program self-backgrounding itself in this way -- e.g., the IPC functions in **emacs** are known to have problems with this. If no **–sourceposition** or **–unique** argument is given, then this option has no effect. (Note: **–nofork** corresponds to **fork:off**; **+nofork** to **fork:on**.)

**–noghostscript**

(**.ghostscript**) Inhibits the use of Ghostscript for displaying PostScript<tm> specials. (Note: **–noghostscript** corresponds to **ghostscript:off**; **+noghostscript** to **ghostscript:on**.)

**–nogrey**

(**.grey**) Turns off the use of greyscale anti-aliasing when printing shrunken bitmaps. (Note: **–nogrey** corresponds to **grey:off**; **+nogrey** to **grey:on**.) See also the ‘**G**’ key-



stroke.

#### **-nogssafer**

(**.gsSafer**) Normally, if Ghostscript is used to render PostScript specials, the Ghostscript interpreter is run with the option **-dSAFER**. The **-nogssafer** option runs Ghostscript without **-dSAFER**. The **-dSAFER** option in Ghostscript disables PostScript operators such as **deletefile**, to prevent possibly malicious PostScript programs from having any effect. If the **-safer** option is specified, then this option has no effect; in that case Ghostscript is always run with **-dSAFER**. (Note: **-nogssafer** corresponds to **gsSafer:off**; **+nogssafer** to **gsSafer:on**.)

#### **-noinstall**

(**.install**) Inhibit the default behavior of switching to a **TrueColor** visual if one is available with more bits per pixel than the current visual. (Note: **-noinstall** corresponds **install:off**; there is no **+noinstall** option.) See also **-install**, and the GREYSCALING AND COLORMAPS section.

#### **-nomakepk**

(**.makePk**) Turns off automatic generation of font files that cannot be found by other means. (Note: **-nomakepk** corresponds to **makePk:off**; **+nomakepk** to **makePK:on**.)

#### **-nomatchinverted**

(**.matchInverted**) Don't highlight string search matches in inverted color; instead, draw a rectangle in *highlight* color (see the **-hl** option) around the match. This option is activated automatically if the display isn't running in TrueColor. (Note: **-nomatchinverted** corresponds to **matchInverted:off**; **+nomatchinverted** to **matchInverted:on**.)

#### **-noomega**

(**.omega**) This will disable the use of Omega extensions when interpreting DVI files. By default, the additional opcodes *129* and *134* are recognized by **xdvi** as Omega extensions and interpreted as requests to set 2-byte characters. The only drawback is that the virtual font array will require 65536 positions instead of the default 256 positions, i.e. the memory requirements of **xdvi** will be slightly larger. If you find this unacceptable or encounter another problem with the Omega extensions, you can switch this extension off by using **-noomega** (but please do send a bug report if you find such problems - see the bug address in the **AUTHORS** section below).

(Note: **-noomega** corresponds to **omega: off**; **+noomega** to **omega: on**.)

#### **-noscan**

(**.prescan**) By default, **xdvi** does a preliminary scan of the *dvi* file to process any **paper-size** specials; this is especially important at startup since the paper size may be needed to determine the window size. If PostScript<tm> is in use, then prescanning is also necessary in order to properly process header files. In addition, prescanning is needed to correctly determine the background color of a page. This option turns off such prescanning. (Prescanning will be automatically be turned back on if **xdvi** detects any of the specials mentioned above.) (Note: **-noscan** corresponds to **prescan:off**; **+noscan** to **prescan:on**.)

#### **-notype1fonts**

(**.type1**) This will disable the use of the FreeType library to display PostScript<tm> Type 1 fonts. Use this option as a workaround when you encounter problems with the display of Type 1 fonts (but please don't forget to send a bug report in this case, to the

URL mentioned in the section **AUTHORS** below).

(Note: **-notype1fonts** corresponds to **type1:off**; **+notype1fonts** to **type1:on**.)

### **-notempfile**

(**.tempFile**) As mentioned in the section **DESCRIPTION** above, xdvi will create a temporary copy of the DVI file so that it can be accessed without interruptions even while the file is being rewritten by **TeX**. Since this introduces the overhead of copying the file every time it has changed, the **-notempfile** allows you to turn off this behaviour. In this case, exposing parts of the window while the DVI file is being written by **TeX** will erase the current window contents until the DVI file can be completely reread.

(Note: **-notempfile** corresponds to **tempFile:off**; **+notempfile** to **tempFile:on**.)

### **-offsets** *dimen*

(**.Offset**) Specifies the size of both the horizontal and vertical offsets of the output on the page. By decree of the Stanford **TeX** Project, the default **TeX** page origin is always 1 inch over and down from the top-left page corner, even when non-American paper sizes are used. Therefore, the default offsets are 1.0 inch. The argument *dimen* should be a decimal number optionally followed by any of the two-letter abbreviations for units accepted by **TeX** (**pt**, **pc**, **in**, **bp**, **cm**, **mm**, **dd**, **cc**, or **sp**). By default, the unit will be **cm** (centimeters). See also **-xoffset** and **-yoffset**.

### **-p** *pixels*

(**.pixelsPerInch**) Defines the size of the fonts to use, in pixels per inch. The default value is 600. This option is provided only for backwards compatibility; the preferred way is to set both the resolution and the Metafont mode via the **-mfmode** option (which see).

### **-paper** *papertype*

(**.paper**) Specifies the size of the printed page. Note that in most cases it's best to specify the paper size in the **TeX** input file via the line

```
\usepackage[dvips]{geometry}
```

which will be recognized by both **dvips** and **xdvi**; in that case the use of a **-paper** option should be unnecessary.

The paper size may be specified in the form *widthxheight* optionally followed by a unit, where *width* and *height* are decimal numbers giving the width and height of the paper, respectively, and the unit is any of the two-letter abbreviations for units accepted by **TeX** (**pt**, **pc**, **in**, **bp**, **cm**, **mm**, **dd**, **cc**, or **sp**). By default, the unit is **cm** (centimeters).

There are also synonyms which may be used: **us** (8.5x11in), **legal** (8.5x14in), **foolscap** (13.5x17in), as well as the ISO sizes **a1-a7**, **b1-b7**, **c1-c7**. Each of these also has a landscape or 'rotated' variant: **usr** (11x8.5in), **a1r-a7r**, etc. For compatibility with **dvips**, the formats **letter** (8.5x11in), **ledger** (17x11in) and **tabloid** (11x17in) are also supported (these don't have rotated variants).

Any of the above sizes may be preceded by a plus sign ('+'); this causes the paper size given here to override any paper size given in the *dvi* file. The default paper size is 21 x 29.7 cm (A4 size).

**-pause** (**.pause**) This option provides a simple implementation of incremental (stepwise) display, which can be used for presentations. When this option is used, **xdvi** will pause the display of the current page whenever it encounters a special *special-string* (*xdvi:pause*

by default; the string can be customized via *–pausespecial*, see below), and the cursor will change its shape. The action **unpause-or-next()** (by default bound to the **Space** key) will display the next portion of the page up to the following *special-string*, or until the end of the page is reached. When the option is not used, specials containing *special-string* will be ignored.

**–pausespecial** *special-string*

(**.pauseSpecial**) Sets the special string that causes xdvi to pause when the *–pause* option is active. The default value of *special-string* is *xdvi:pause*.

**–postscript** *flag*

(**.postscript**) If *flag* = 0, rendering of PostScript<tm> specials is disabled; instead, bounding boxes will be displayed (if available). A value of 1 (the default) switches PostScript<tm> specials on. With a value of 2, the PostScript<tm> specials are displayed along with their bounding boxes; this allows you to visually check the correctness of the bounding boxes. The values can also be toggled at runtime with the ‘v’ keystroke and the corresponding numerical prefix arguments 0, 1 and 2.

**–ps2pdfpath** *path*

(**.ps2pdfPath**) Use *path* as a conversion program from PostScript to PDF. The program or script should accept two command-line arguments: The PostScript file as first argument, and the PDF output file as second argument.

**–rulecolor** *color*

(**.ruleColor**) Determines the color of the rules used for the the magnifier (default: foreground color).

**–q**

(**.noInitFile**) Ignore the *\$HOME/.xdvirc* startup file (i.e. don’t read it at startup, and don’t write it at exit). This forces the defaults defined in *\$HOME/Xdefaults* to be used. See **FILES** for more information on *\$HOME/.xdvirc*.

**–rv**

(**.reverseVideo**) Causes the page to be displayed with white characters on a black background, instead of vice versa.

**–S** *density*

(**.densityPercent**) Same as **–density** (which see).

**–s** *shrink*

(**.shrinkFactor**) Defines the initial shrink factor. The default value is 8. If *shrink* is given as 0, then the initial shrink factor is computed so that the page fits within the window (as if the ‘s’ keystroke were given without a number).

**–safer**

(**.safer**) This option turns on all available security options; it is designed for use when **xdvi** is called by a browser that obtains a *dvi* or T<sub>E</sub>X file from another site. This option selects **+nogssafer** and **+allowshell**.

**–sidemargin** *dimen*

(**.sideMargin**) Specifies the side margin (see **–margins**).

**–sourceposition** *line[:col][ ]filename*

This option makes **xdvi** search in the *dvi* file for the place corresponding to the indicated line (and, optionally, column) in the .tex source file, and highlight the place found by drawing a rectangle in the *highlight* color (see the **–hl** option) around the corresponding text. In addition, when run with this argument (and the **–nofork** option is not given, which see), **xdvi** will always return immediately: if it finds another instance of **xdvi** al-

ready showing *dvi\_file*, then it will cause that instance to raise its window and move to the given place in the *dvi* file; otherwise it will start up its own instance in the background. If several instances of *xdvi* are displaying the respective *dvi* file, the instance which was last raised to the foreground will be used.

The space before *filename* is only needed if the filename starts with a digit. When the space is used, the argument needs to be enclosed in quotes to prevent the shell from misinterpreting the space as argument separator.

This option requires that *dvi\_file* be prepared with source special information. See the section on SOURCE SPECIALS for details on how to do this.

Here is a more detailed description of how the filename in the *–sourceposition* argument is matched with the filename in the source specials:

1. If neither of the filenames contains a path name component, the filenames are compared ignoring the *.tex* extensions in both filenames.
2. Otherwise, if one of the filenames does contain a path component (e.g.: *./test.tex*, *../test.tex*, */my/homedir/tex/test.tex* or any combination of these), both filenames are expanded to a full path, with any occurrences of *../* and *./* expanded, and multiple slashes removed.

The pathname in the *–sourceposition* is expanded relative to the current working directory of the *xdvi –sourceposition* invocation, and the pathnames in the source specials are expanded relative to the path of the current DVI file being viewed.

The path names are then compared ignoring the *.tex* extensions in both path names.

#### **–statusline**

(**.statusline**) This option is obsolete; use **–expertmode flag** instead (which see).

#### **–thorough**

(**.thorough**) **Xdvi** will usually try to ensure that overstrike characters (e.g., **\notin**) are printed correctly. On monochrome displays, this is always possible with one logical operation, either *and* or *or*. On color displays, however, this may take two operations, one to set the appropriate bits and one to clear other bits. If this is the case, then by default **xdvi** will instead use the *copy* operation, which does not handle overstriking correctly. The **–thorough** option chooses the slower but more correct choice. See also **–copy**.

#### **–topmargin *dimen***

(**.topMargin**) Specifies the top and bottom margins (see **–margins**).

#### **–unique**

(**.unique**) This option will make another instance of *xdvi* running on the same display act as a ‘server’. For example, the invocation

**xdvi -unique +5 file.dvi**

will cause this other instance to load *file.dvi* on page 5 in place of the file that it is currently displaying. If there is already another instance of *xdvi* already displaying the file *file.dvi*, then it will just jump to page 5. If the other instance of *xdvi* is displaying a different file, it will load *file.dvi* instead. Otherwise, if no other instance of *xdvi* is currently running on the display, this option instead starts a new instance of *xdvi* in the back-

ground (unless the *–nofork* option is specified, which see) displaying page 5 of *file.dvi*. The filename and the *+n* option for the page number are the only options available for controlling a remote instance of *xdvi* like this; all other options are currently ignored.

**–useTeXpages**

Use logical  $\text{\TeX}$  pages (the values of the `\count0` register) instead of physical pages for the pagelist labels and when jumping to a page in a document with the ‘g’ keystroke (or the **goto-page()** action). This option can be toggled via the ‘T’ keystroke.

**–version**

Print information on the version of **xdvi**.

**–visitedlinkcolor**

(**.visitedLinkColor**) Color used for visited hyperlinks (‘Purple4’ by default). Hyperlinks become visited once you click on them. As for **linkColor**, the value should be either a valid X color name or a hexadecimal color string.

**–warnspecials**

(**.warnSpecials**) Causes **xdvi** to print warnings about `\special` strings that it cannot process to stderr. These warnings are suppressed by default.

**–watchfile *n***

(**.watchFile**) If this option is set to a value larger than 0, *xdvi* will check the DVI file for changes every *n* seconds. If the DVI file has been completely written by  $\text{\TeX}$ , it will be reloaded automatically. Fractional values (e.g. ‘2.5’) are possible. The default for this option is 0, i.e. no watching.

Since *xdvi* cannot handle partial DVI files, it tries not to reload the file while it is being rewritten. However, use of the magnifier or switching of pages requires reading (a part of) the DVI file, and if the **tempfile** option is switched off, this will erase the current contents of the window until the DVI file can be read entirely.

**–wheelunit *pixels***

(**.wheelUnit**) Sets the number of pixels that a motion of a wheel mouse will move the image up, down, left, or right. (See the **wheel** and **hwheel** actions, below, for more information on this.) If set to zero, the wheel mouse functionality is (essentially) disabled. The default value is 80.

**–xoffset *dimen***

(**.xOffset**) Specifies the size of the horizontal offset of the output on the page. See **–offsets**.

**–yoffset *dimen***

(**.yOffset**) Specifies the size of the vertical offset of the output on the page. See **–offsets**.

## KEYSTROKES

**Xdvi** recognizes the following keystrokes when typed in its window. Each may optionally be preceded by a (positive or negative) number, a ‘prefix argument’, whose interpretation will depend on the particular keystroke. This prefix argument can be discarded by pressing the “Escape” key. If present, the “Help”, “Prior” and “Next” keys are synonyms for ‘?’, ‘b’, and ‘f’ keys, respectively.

The key bindings listed here are those that **xdvi** assigns by default. The names appearing in brackets at the beginning of the descriptions are the names of the actions associated with the keys; these can be used to customize the key bindings, as explained in more detail in the section

**CUSTOMIZATION** below. If only a lowercase binding is listed, both upper- and lowercase keys will work for that binding.

**ESC key**

**[discard-number()]** The escape key discards the numerical prefix for all actions (useful when you mistyped a number).

**Return key**

**[forward-page()]** Moves to the next page (or to the *n*th next page if a number is given). Synonyms are ‘**n**’, ‘**f**’ and Line Feed.

**Backspace key**

**[back-pagee()]** Moves to the previous page (or back *n* pages). Synonyms are ‘**p**’, ‘**b**’ and **Ctrl-h**.

**Delete key**

**[up-or-previous()]** Moves up two-thirds of a window-full, or to the top of the previous page if already at the top of the page. With a float argument, moves up the corresponding fraction of a window-full.

**Space key**

**[unpause-or-next()]** Moves down two-thirds of a window-full, or to the next page if already at the bottom of the page.

When the option **—pause** *special-string* is used and the display is currently paused, this key will instead display the next portion of the page until the next *special-string* or the end of the page is encountered. See the description of the **—pause** option for details. The action **[down-or-next()]** does a similar thing, but without pausing; it is not bound to a key by default.

**Ctrl-Home (Xaw), Ctrl-osfBeginLine (Motif)**

**[goto-page(1)]** Moves to the first page of the document.

**Ctrl-End (Xaw), Ctrl-osfEndLine (Motif)**

**[goto-page()]** Moves to the last page of the document.

**Home (Xaw), osfBeginLine (Motif)**

**[home-or-top()]** Move to the “home” position of the page, or to the top of the page if the *keep* flag is set (in this case, the page doesn’t scroll horizontally).

**End (Xaw), osfEndLine (Motif)**

**[end-or-bottom()]** Move to the “end” position of the page (the lower right-hand corner), or to the bottom of the page if the *keep* flag is set (in this case, the page doesn’t scroll horizontally).

**Down arrow**

**[down(0.015)]** Scrolls page down.

**Up arrow**

**[up(0.015)]** Scrolls page up.

**Right arrow**

**[right(0.015)]** Scrolls page right.

**Left arrow**

**[left(0.015)]** Scrolls page left.

**Alt-Ctrl-+**

**[change-density(25)]** Increase the darkness of the fonts in the DVI window by adding to the gamma value (see also the ‘**S**’ keystroke).

**Alt-Ctrl--**

**[change-density(-25)]** Decrease the darkness of the fonts in the DVI window by subtracting from the gamma value (see also the ‘**S**’ keystroke).

**Ctrl-+** **[set-shrink-factor(+)]** Increase the shrink factor (see also the ‘**s**’ keystroke).

**Ctrl--** **[set-shrink-factor(-)]** Decrease the shrink factor (see also the ‘**s**’ keystroke).

**Ctrl-[** **[pagehistory-delete-backward()]** Delete the current item in the page history and move to the history item before the deleted one. With a prefix argument **n**, delete **n** previous history items. See **PAGE HISTORY** for details.

**[** **[pagehistory-back()]** Move back in the page history (see **PAGE HISTORY** for details). With a prefix argument **n**, move back **n** history items.

**Ctrl-]** **[pagehistory-delete-forward()]** Delete the current item in the page history and move to the history item after the deleted one. With a prefix argument **n**, delete **n** next history items. See **PAGE HISTORY** for details.

**]** **[pagehistory-forward()]** Move forward in the page history (see **PAGE HISTORY** for details). With a prefix argument **n**, move forward **n** history items.

**^** **[home()]** Move to the “home” position of the page. This is normally the upper left-hand corner of the page, depending on the margins as described in the **–margins** option, above.

**?** **[help()]** Same as the **h** key (which see).

**B** **[htex-back()]** This key jumps back to the previous hyperlink anchor. See the section **HYPERLINKS** for more information on navigating the links.

**b** **[back-page()]** Moves to the previous page (or back *n* pages). Synonyms are ‘**p**’, **Ctrl-h** and **Backspace**.

**C** **[set-color()]** This key toggles the use of color specials. The key sequences ‘**0C**’ and ‘**1C**’ turn interpretation of color specials off and on, respectively. See also the **–nocolor** option.

**c** **[center()]** Moves the page so that the point currently beneath the mouse cursor is moved to the middle of the window, and warps the mouse cursor to the same place.

**D** **[toggle-grid-mode()]** This key toggles the use of a grid on the displayed page. If no number is given, the grid mode is switched on or off. By prepending a number from 1 to 3, 3 different grid levels can be set. The units of the grid are inches or centimeters, depending on whether the paper format is letter (in) or a4 (cm).

**d** **[down()]** Moves page down two thirds of a window-full. With a float argument to “down”, moves down the corresponding fraction of a window-full.

**Ctrl-f** **[find()]** Pop up a window to search for a string in the DVI file. See the section **STRING SEARCH**, below, for more details.

**f** **[forward-page()]** Moves to the next page (or to the *n*th next page if a number is given). Synonyms are ‘**n**’, **Return**, and **Line Feed**.

- G** [**set-greyscaling()**] This key toggles the use of greyscale anti-aliasing for displaying shrunken bitmaps. In addition, the key sequences '**0G**' and '**1G**' clear and set this flag, respectively. See also the **-nogrey** option.
- If given a numeric argument that is not 0 or 1, greyscale anti-aliasing is turned on, and the gamma resource is set to the value divided by 100. E.g., '**150G**' turns on greyscale and sets gamma to 1.5.
- Ctrl-g** [**find-next()**] Find the next match string in the DVI file; this can be used instead of pressing the 'Find' button in the search window.
- g** [**goto-page()**] Moves to the page with the given number. If no page number is given, xdvi jumps to the last page.
- If the option/resource **useTeXpages** is active, the numbers correspond to the actual page numbers in the TeX file; otherwise, absolute page numbers (starting from 1) are used. In the latter case, the page numbers can be changed with the '**P**' keystroke, below. Note that with the **useTeXpages** option it is possible that the same page number occurs multiple times; in such a case, xdvi will use the first page number that matches.
- h** Pops up a help window with a short explanation of the most important key bindings and concepts.
- k** [**set-keep-flag()**] Normally when **xdvi** switches pages, it moves to the home position as well. The '**k**' keystroke toggles a 'keep-position' flag which, when set, will keep the same position when moving between pages. Also '**0k**' and '**1k**' clear and set this flag, respectively. See also the **-keep** option.
- Ctrl-l** [**fullscreen(toggle)**] Toggles fullscreen mode (see the description of the **-fullscreen** option for more information on this). This is even more flaky than using the command-line option: There is no universal standard how a window could change its own geometry or window decorations at run-time, so this will not work with most window managers or desktops. Generally, it's better to use the window manager controls to change the size or decorations of the xdvi window.
- l** [**left()**] Moves page left two thirds of a window-full.
- M** [**set-margins()**] Sets the margins so that the point currently under the mouse cursor defines the upper left-hand corner of the text in the page. Note that the command does *not* move the image, but only determines the margins for the page switching commands. For details on how the margins are used, see the **-margins** option.
- m** [**toggle-mark()**] Toggles the mark for the current page in the page list. When a page is marked, it is displayed with a small star '\*' next to the page number. The marked pages can then be printed or saved to a file. A page or several pages can also be marked by clicking or dragging **Mouse-2** in the page list.
- Ctrl-n** [**toggle-mark()****forward-page()**] Toggles the mark for the current page in the page list, and moves to the next page. This lets you quickly mark a series of subsequent pages.
- n** [**forward-page()**] Moves to the next page (or to the *n*th next page if a number is given). Synonyms are '**f**', Return, and Line Feed.
- Ctrl-o** [**select-dvi-file()**] Read a new *dvi* file. A file-selection widget is popped up for you to choose the DVI file from. If a prefix argument *n* is given, the *n*th file from the file history is opened instead.



- P** [**declare-page-number()**] “This is page number *n*.” This can be used to make the ‘g’ keystroke refer to a different page number than the physical page. (If you want to use ‘logical’ or T<sub>E</sub>X page numbers instead of physical pages, consider using the option **–useTeXpages** instead.) The argument *n* should be given as prefix to this key.
- Ctrl-p** [**print()**] Opens a popup window for printing the DVI file, or parts of it. See the section **PRINT DIALOG** for an explanation of the options available, and the resources to customize the default behaviour.
- p** [**back-page()**] Moves to the previous page (or back *n* pages). Synonyms are ‘b’, **Ctrl-h** and **Backspace**.
- q** [**quit()**] Quits the program.
- Ctrl-r** [**forward-page(0)**] Redisplays the current page.
- R** [**reread-dvi-file()**] Forces the *dvi* file to be reread. This allows you to preview many versions of the same file while running **xdvi** only once.
- r** [**right()**] Moves page right two thirds of a window-full.
- Ctrl-s** [**save()**] Opens a popup window for saving the DVI file, or parts of it. See the section **SAVE DIALOG** below for more information on this.
- S** [**set-density()**] Sets the density factor to be used when shrinking bitmaps. This should be a number between 0 and 100; higher numbers produce lighter characters. If greyscaling mode is in effect, this changes the value of gamma instead. The new value of gamma is the given number divided by 100; negative values are allowed.
- s** [**set-shrink-factor()**] Changes the shrink factor to the given number. If no number is given, the smallest factor that makes the entire page fit in the window will be used. (Margins are ignored in this computation.)
- T** [**use-tex-pages()**] Use logical T<sub>E</sub>X pages (the values of the `\count0` register) instead of physical pages for the pagelist labels and when jumping to a page in a document via **go-to-page()**. See also the **–useTeXpages** option.
- t** [**switch-magnifier-units()**] Switches the units used for the magnifier tick marks, and for reporting the distance between the mouse pointer and the ruler centre in ruler mode (see the section **MODES**). The default value is specified by the X resource **tickUnits** (‘mm’ by default). The units toggle through the following values; except for ‘px’, they all correspond to T<sub>E</sub>X’s units: *mm* (millimeters) *pt* (T<sub>E</sub>X points), *in* (inches), *sp* (scaled points, the unit used internally by T<sub>E</sub>X) *bp* (big points or ‘PostScript points’), *cc* (cicero points), *dd* (didot points), *pc* (pica), and *px* (screen pixels).
- Ctrl-u** [**back-page()toggle-mark()**] Moves to the previous page, and toggles the mark for that page. This is the dual action to **Ctrl-n**.
- u** [**up()**] Moves page up two thirds of a window-full. With a float argument to “up”, moves up the corresponding fraction of a window-full.
- Ctrl-v** [**show-source-specials()**] Show bounding boxes for every source special on the current page, and print the strings contained in these specials to stderr. With prefix 1, show every bounding box on the page. This is for debugging purposes mainly.
- V** [**set-gs-alpha()**] This key toggles the anti-aliasing of PostScript<tm> specials when **Ghostscript** is used as renderer. In addition the key sequences ‘0V’ and ‘1V’ clear and

set this flag, respectively. See also the **-gsalpha** option.

**v** [**set-ps()**] This key toggles the rendering of PostScript<tm> specials between 3 states:

- specials (like EPS graphics) are displayed;
- specials are displayed along with their bounding box (if available);
- only the bounding box is displayed.

The states can also be selected directly by using **'1v'**, **'2v'** and **'0v'** respectively. See also the **-postscript** option.

**Ctrl-x** [**source-what-special()**] Display information about the source special next to the mouse cursor in the statusline. This is the same special that would be found by *source-special()*, but without invoking the editor. For debugging purposes.

**x** [**set-expert-mode()**] Toggles expert mode, in which the statusline, the scrollbars, the menu buttons, the toolbar (Motif only) and the page list are not shown. Typing **'1x'** toggles the display of the statusline at the bottom of the window. Typing **'2x'** toggles the scrollbars (if available). For Xaw, **'3x'** toggles the menu buttons and the page list, for Motif, it toggles the page list. In Motif, the additional bindings **'4x'** toggle the toolbar, and **'5x'** the menu bar.

Without a prefix argument, all of the mentioned GUI elements are either switched on (if they had been invisible before) or off.

Toggling the scrollbars may behave erratically with the Xaw widgets; e.g. the scrollbars may reappear after resizing the window, and at certain window sizes one of the scrollbars may fail to disappear.

See also the option **-expertmode** (the numbers above correspond to the bits in the argument to **-expertmode**).

## MOUSE ACTIONS IN THE MAIN WINDOW

The mouse actions can be customized by setting the X resource **mouseTranslations**. Since there are three different mouse modes (see the section **MODES** below), there is a special action **mouse-modes** which lists the actions for each of the three modes: **mouse-modes("ACTIONS-FOR-MODE1", "ACTIONS-FOR-MODE2", "ACTIONS-FOR-MODE3")**. If only one argument is specified, this action is used for all modes. The default bindings are as follows:

```
xdvi.mouseTranslations: \
Shift<Btn1Down>:mouse-modes("drag(+)")\n\
Shift<Btn2Down>:mouse-modes("drag()")\n\
Shift<Btn3Down>:mouse-modes("drag(-)")\n\
Ctrl<Btn1Down>:mouse-modes("source-special()")\n\
<Btn1Down>: mouse-modes("do-href()magnifier(*2)", "text-selection()", "ruler()")\n\
<Btn2Down>: mouse-modes("do-href-newwindow()magnifier(*2)", "text-selection()", "ruler()")\n\
<Btn3Down>: mouse-modes("magnifier(*3)")\n\
<Btn4Down>: mouse-modes("wheel(-0.2)")\n\
<Btn5Down>: mouse-modes("wheel(0.2)")\n\
<Btn6Down>: mouse-modes("hwheel(-0.2)")\n\
<Btn7Down>: mouse-modes("hwheel(0.2)")\n\
```

All of these actions are described in more detail below. Note the use of quote symbols around the action strings, which are necessary to group them into one argument. Buttons 4, 5, 6, and 7 refer to wheel movements (wheel up/down/left/right) on wheel mice. Not all mice support horizontal

scrolling.

The X Toolkit routines that implement translations do not support event types of **Btn6Down** or **Btn7Down**. Because of this, **xdvi** implements its own parser for translations given in **mouseTranslations**. This parser is more limited than the parser built in to the X Toolkit. The string given in **mouseTranslations** should not begin with “**#replace**”, “**#augment**”, or “**#override**”. Modifiers of the form *@keysym* are not supported, and the event type must be of the form **Btn $n$ Down** or **Btn $n$ Down**, where  $n$  is a positive integer without leading zeroes. Also, some limitations apply to the action field.

#### **do-href()**

#### **do-href-newwindow()**

Usually, if a binding specifies more than one action, all actions are executed in a sequence. The hyperlink bindings **do-href()** and **do-href-newwindow()** are special in that they are used as an *alternative* to other actions that might follow them *if* the mouse is currently located on a hyperlink. In this case, none of the other actions will be executed; otherwise, only the other actions are executed.

The action **do-href()** jumps to the link target in the current **xdvi** window (eventually switching to another page), and **do-href-newwindow()** opens a new instance of **xdvi** for the link target. In both cases, the location of the target is indicated by a small arrow drawn in the same color as a visited link in the left corner of the window.

#### **magnifier(n x m)**

#### **magnifier(\*n)**

This action will pop up a “magnifying glass” which shows the unshrunk image of the region around the mouse pointer. The magnifier disappears when the mouse button is released. Moving the mouse cursor while holding the button down will move the magnifier.

Different mouse buttons produce different sized windows, as indicated by the the argument of the *magnifier()* action. Its argument is either a string of the form *widthxheight*, as in the **-mgns** command-line option, or one of the strings **\*1** through **\*5**, referring to the value specified by the corresponding **-mgns** option.

#### **drag(+)**

#### **drag()**

**drag(-)** Drags the page with the mouse. This action should have one parameter, the character “|”, “-”, or “+”, indicating vertical dragging only, horizontal dragging only, or dragging in all directions.

#### **source-special()**

This action starts a “reverse search”, opening the editor at the location in the  $\text{\TeX}$  file corresponding to the pointer location in the DVI file. See the section on SOURCE SPECIALS, below, for more information on this.

#### **wheel()**

This action can be used to scroll the image with a wheel mouse, where it is usually bound to mouse button 4 (wheel up) or 5 (wheel down). The action takes one parameter, giving the distance to scroll the image. If the parameter contains a decimal point, the distance is given in wheel units; otherwise, pixels. A negative value scrolls up, a positive value scrolls down.

**hwheel()**

This action can be used to scroll the image horizontally with a wheel mouse, where it is usually bound to mouse button 6 (wheel left) or 7 (wheel right). The action takes one parameter, giving the distance to scroll the image. If the parameter contains a decimal point, the distance is given in wheel units; otherwise, pixels. A negative value scrolls left, a positive value scrolls right. Not all mice support horizontal scrolling; this is mostly for touchpads, trackpads, etc.

**text-selection()**

This action allows you to mark a rectangular region of text in the DVI file. The text is put into the X selection buffer and can be pasted into other applications (e.g. text editors). This works similar to the Plain text option in the **Save** dialog; see the discussion there for more information on encoding issues.

**ruler()** This action creates a cross-shaped ruler. Moving the mouse and holding the button down drags the ruler and lets you measure distances on the page. See the section **Ruler Mode** for more information on this.

**UNBOUND ACTIONS**

The following actions are not bound to a key by default, but are available for customization.

**quit-confirm()**

Pops up a confirmation window to quit xdvi. To bind it to the ‘q’ key instead of the default ‘quit()’ action, put the following into your *~/.Xdefaults* file:

```
xdvi.mainTranslations: #override\  
<Key>q: quit-confirm()\n
```

**down-or-next()**

Similar to *unpause-or-next()*: Moves down two-thirds of a window-full, or to the next page if already at the bottom of the page.

**shrink-to-dpi()**

This action takes one (required) argument. It sets the shrink factor to an integer so as to approximate the use of fonts with the corresponding number of dots per inch. If **xdvi** is using fonts scaled for *p* dots per inch, and the argument to **shrink-to-dpi** is *n*, then the corresponding shrink factor is the ratio *p/n*, rounded to the nearest integer.

**CUSTOMIZATION**

Key and mouse button assignments can be changed by setting the **mainTranslations** resource to a string of translations as defined in the documentation for the X toolkit. The actions should take the form of action names listed in the KEYSTROKES and MOUSE ACTIONS sections.

An exception to this are the Motif keys *osfPageUp* (*PgUp*), *osfPageDown* (*PgDown*), *osfBeginLine* (*Home*) and *osfEndLine* (*End*) which are currently not customizable in the Motif version.

Key actions will usually be without arguments; if they are passed an argument, it represents the optional number or ‘prefix argument’ typed prior to the action.

Some key actions may take special arguments, as follows: The argument of **goto-page** may be the letter ‘e’, indicating the action of going to the end of the document. The argument of **set-shrink-factor** may be the letter ‘a’, indicating that the shrink factor should be set to the smallest value such that the page will fit in the window, or one of the signs ‘+’ or ‘-’, indicating that the shrink factor should be increased or decreased, respectively. Finally, actions that would perform a tog-

gle, such as **set-keep-flag**, may receive an argument ‘**t**’, indicating that the action should toggle regardless of the current prefix argument.

Mouse actions should refer only to **ButtonPress** events (e.g., **<Btn1Down>:magnifier(\*1)**). The corresponding motion and release events will be handled internally. A key action may be bound to a mouse event, but not vice versa.

Usually the string of translations should begin with “**#override**”, indicating that the default key and mouse button assignments should not be discarded.

When keys or mouse buttons involving modifiers (such as Ctrl or Shift) are customized together with their non-modified equivalents, the modified keys should come first, for example:

```
xdvi.mainTranslations: #override \  
Shift<Key>s: select-dvi-file()\n\  
Ctrl<Key>s: save()\n\  
<Key>s: find()\n
```

Because **xdvi** needs to capture pointer motion events, and because the X Toolkit translations mechanism cannot accommodate both motion events and double-click events at the same time, it is not possible to specify double-click actions in **xdvi** customizations. For information on this and other aspects of translations, see the X Toolkit Intrinsics documentation.

There is no command-line option to set the **mainTranslations** resource, since changing this resource on the command line would be cumbersome. To set the resource for testing purposes, use the **-xrm** command-line option provided by the X toolkit. For example, **xdvi -xrm 'XDvi.mainTranslations: #override "z":quit()' ...** or **xdvi -xrm 'XDvi.mainTranslations: #override <Key>z:quit()' ...** will cause the key ‘**z**’ to quit **xdvi**.

Some resources are provided to allow customization of the geometry of the Xaw command buttons. Again, they are not changeable via command-line options, other than via the **-xrm** option. All of these resources take integer values.

#### **buttonSideSpacing**

The number of pixels to be placed on either side of the buttons. The default value is 6.

#### **buttonTopSpacing**

The number of pixels between the top button and the top of the window. The default value is 50.

#### **buttonBetweenSpacing**

The number of pixels between the buttons. The default value is 20.

#### **buttonBetweenExtra**

The number of pixels of additional space to be inserted if the **buttonTranslations** resource string contains an extra newline character. The default value is 50.

#### **buttonBorderWidth**

The border width of the button windows. The default value is 1.

## **PAGE LIST**

The scrollable page list on the right of the main window allows you to jump directly to a page in the DVI file.

**Mouse-1**

Jumps to the page the mouse is located on.

**Mouse-2**

[**toggle-mark()**] Toggle the mark of the current page. The marks are used by the ‘Print’ and ‘Save to file’ dialogs to select only marked pages from the DVI file.

When the mouse pointer is inside the page list, the mouse wheel switches to the next or previous page.

**SCROLLBARS**

The scrollbars (if present) behave in the standard way: pushing Button 2 in a scrollbar moves the top or left edge of the scrollbar to that point and optionally drags it; pushing Button 1 moves the image up or right by an amount equal to the distance from the button press to the upper left-hand corner of the window; pushing Button 3 moves the image down or left by the same amount.

The scrollbars can be removed via the *-expertmode* flag/keystroke (which see).

**MAGNIFIER**

By default, the mouse buttons 1 to 5 will pop up a “magnifying glass” that shows an unshrunk image of the page (i.e. an image at the resolution determined by the option/X resource **pixels** or **mfmode**) at varying sizes. When the magnifier is moved, small ruler-like tick marks are displayed at the edges of the magnifier (unless the X resource **delayRulers** is set to false, in which case the tick marks will always be displayed). The unit of the marks is determined by the X resource **tickUnits** (mm by default). This unit can be changed at runtime via the action **switch-magnifier-units()**, by default bound to the keystroke ‘t’ (see the description of that key, and of **switch-magnifier-units()** for more details on the units available).

The length of the tick marks can be changed via the X resource **tickLength** (4 by default). A zero or negative value suppresses the tick marks.

**PAGE HISTORY**

**Xdvi** keeps a history of viewed pages, and you can move through the history and delete items using the keys [ (*pagehistory-back()*), ] (*pagehistory-forward()*), **Ctrl-[** (*pagehistory-delete-backward()*) and **Ctrl-]** (*pagehistory-delete-forward()*).

When one of the history commands is used, the page history is displayed in the status line at the bottom of the window, with the current list item marked by square brackets ‘[’, ‘]’ and a left and right context of at most 10 items. File boundaries are marked by ‘#’.

The size of the history can be customized with the X resource **pageHistorySize** (the default size is 1000 items). If the size is set to 0, the history commands are disabled.

**HYPERLINKS**

The actions **do-href()** and **do-href-newwindow()** (by default bound to Mouse-1 and Mouse-2 if the pointer is currently located on a hyperlink) can be used to open the link target in the same window (**do-href()**) or in a new window (**do-href-newwindow()**).

If the link target is not a file on the local disk, **xdvi** tries to launch a web browser (as specified by the **-browser** command line option, the **BROWSER** environment variable or the **wwwBrowser** X resource, in this order) to retrieve the document. See the description of the **BROWSER** environment variable, below, for an example setting.

If the file is a local file, **xdvi** tries to determine if it is a DVI file. If it is, **xdvi** will try to display the file; otherwise it will try to determine the MIME type of the file, and from that an application suitable for opening the file. This is done by parsing the files specified by the environment vari-

able **EXTENSIONMAPS** for a mapping of filename extensions to MIME types, and the files determined by the environment variable **MAILCAPS** for a mapping of MIME types to application programs. See the descriptions of these variables in the section **ENVIRONMENT**, below, for a more detailed description and the default values of these variables. If no suitable files are found, a set of built-in default MIME types and applications is used.

**Xdvi** currently uses no heuristics apart from the filename suffix to determine the mime type of a file. If a filename has no suffix, the value of the resource **noMimeTypeSuffix** is used (by default *application/x-unknown*). If the suffix doesn't match any of the suffixes in **mime.types**, the value of the resource **unknownMimeTypeSuffix** is used (by default *application/x-unknown*). If the **mailcap** entries do not list a viewer for a given mime type, **xdvi** will show a warning popup. If you want to avoid this warning, and for example want to always use the netscape browser for unknown MIME types, you could add the following line to your `~/.mailcap` file:

```
application/xdvi-unknown; \
    netscape -raise -remote 'openURL(%s,new-window)'
```

## STRING SEARCH

The keystroke *Ctrl-f* or the menu entry *File > Find ...* (or the ‘Binoculars’ symbol in the toolbar, for Motif) opens a dialog window to search for a text string or a regular expression in the DVI file. The keystroke *Ctrl-g* jumps to the next match (like pressing the ‘Find’ button in the search window).

By default, the matches are highlighted in inverted color. If the display isn't running in TrueColor, or if the X resource **matchHighlightInverted** is set to false or the command-line option **-no-matchinverted** is used, **xdvi** will instead draw a rectangle in *highlight* color (see the **-hl** option) around the match.

If a match crosses a page boundary, only the part on the first page is highlighted. **Xdvi** will scan up to 2 adjacent pages to match strings crossing page boundaries; but note that header or footer lines, or intervening float pages will be treated as parts of the scanned text. Such text will usually cause multi-page matching to fail.

This emphasizes the fact that searching in the formatted text (the DVI output) works differently from searching in the source text: Searching in the DVI file makes it easier to skip formatting instructions, and makes it possible to search for e.g. hyphenation and equation numbers; but sometimes the formatting results can also get in the way, e.g. in the case of footnotes. In these cases it's better to search in the  $\text{\TeX}$  source instead. The use of *source specials* will make switching between the **xdvi** display and the editor with the  $\text{\TeX}$  source easier; see the section **SOURCE SPECIALS** below for more information on this.

The text extracted from the DVI file is encoded in UTF-8 (you can view that text by saving the file in UTF-8 format via the *File > Save as ...* menu item). If **xdvi** has been compiled with *locale*, *nl\_langinfo()* and *iconv* support, the search term is converted from the character set specified by the current locale into UTF-8. (See the output of **locale -a** for a list of locale settings available on your system). If *nl\_langinfo()* is not available, but *iconv* is, you can specify the input encoding for *iconv* via the X resource *textEncoding* (see the output of **iconv -l** for a list of valid encodings). If *iconv* support is not available, only the encodings *ISO-8859-1* and *UTF-8* are supported (these names are case-insensitive).

Ideographic characters from CJKV fonts are treated specially: All white space (spaces and new-lines) before and after such characters is ignored in the search string and in the DVI file.

To match a newline character, use `\n` in the search string; to match the string `\n`, use `\\n`.

If the checkbox *Regular Expression* is activated, the string is treated as a regular expression in extended POSIX syntax, with the following properties:

- `a?` matches `a` zero or one times.
- `a*` matches `a` zero or more times.
- `a+` matches `a` one or more times. Note that `*` and `+` are greedy, i.e. they match the longest possible substring.
- The pattern `.` matches any character except for newline. To also match a newline, use `'(./n)'`.
- `a{n}` matches `a` exactly `n` times.
- `a{n,m}` matches `a` at least `n` and no more than `m` times.
- `a/b` matches `a` or `b`. Brackets can be used for grouping, e.g.: `(a/b)/c`.
- The string matched by the `n`th group can be referenced by `\n`, e.g. `\1` refers to the first match.
- The characters `^` and `$` match the beginning and the end of a line, respectively.
- `[abc]` matches any of the letters `a`, `b`, `c`, and `[a-z]` matches all characters from `a` to `z`.
- Each item in a regular expression can also be one of the following POSIX character classes:  
`[:alnum:]` `[:alpha:]` `[:blank:]` `[:cntrl:]` `[:digit:]`  
`[:graph:]` `[:lower:]` `[:print:]` `[:space:]` `[:upper:]`

These can be negated by inserting a `^` symbol after the first bracket: `[^:alpha:]`

For more details on POSIX regular expressions, see e.g. the **IEEE Std 1003.1** standard definition available online from:

[http://www.opengroup.org/onlinepubs/007904975/basedefs/xbd\\_chap09.html](http://www.opengroup.org/onlinepubs/007904975/basedefs/xbd_chap09.html)

- As a non-standard extension, the following Perl-like abbreviations can be used instead of the POSIX classes:

Symbol	Meaning	POSIX Class
<code>\w</code>	an alphanumeric character	<code>[:alnum:]</code>
<code>\W</code>	a non-alphanumeric character	<code>[^:alnum:]</code>
<code>\d</code>	a digit character	<code>[:digit:]</code>
<code>\D</code>	a non-digit character	<code>[^:digit:]</code>
<code>\s</code>	a whitespace character	<code>[:space:]</code>
<code>\S</code>	a non-whitespace character	<code>[^:space:]</code>

- The following characters are special symbols; they need to be escaped with `\` in order to match them literally: `( ) [ ] . * ? + ^ $ \`.
- Matches of length zero are silently skipped.

The dialog also provides checkboxes to:

- search backwards;



- match in a case-sensitive manner (the default is to ignore case, i.e. a search string *Test* will match both the strings *test* and *TEST* in the DVI file);
- ignore line breaks and hyphens: This removes all hyphens at the ends of lines and the following newline characters, and replaces all remaining newline characters by white spaces. So hyphenated words will appear as one word to the search, and a search for two words with a space in between will also match the words if they are separated by a linebreak. Note that the hyphen removal may cause unwanted side effects for compound words containing hyphens that are wrapped after the hyphen, and that replacing the newlines affects the interpretation of regular expressions as follows: The `.` pattern will also match newlines, and `^` and `$` won't match begin and end of lines any more. (Since currently there is no option for turning off the greediness of `*` and `+`, turning on this option will usually result in matches that are longer than desired.)

The current checkbox settings are saved in the `~/.xdvirc` file.

## PRINT DIALOG

The print dialog window allows you to print all pages, marked pages (click or drag Mouse-2 in the page list to mark them), or a range of pages. Note that the page numbers always refer to physical pages, so if you're using the option 'use TeX pages', you may want to disable it to make it easier to determine the correct page numbers (or avoid this problem altogether by marking the pages to be printed).

The value of the **Printer** text field is passed to **dvips** via the **-o!** mechanism, as a single argument after the '!'. Any arguments listed in the **Dvips options** field are segmented at whitespaces and passed as separate arguments to dvips. If you e.g. want to print the file 2-up, you should enter the following string into the **Printer** field:

```
psnup -2 -q | lpr -Plp
```

There are several resources for customizing the behaviour and the default entries of the print dialog:

### **dvipsPrinterString**

### **dvipsOptionsString**

These can be used to provide default entries for the **Printer** and the **Dvips options** text fields, respectively. If no paper size is specified in the DVI file (via e.g. `\usepackage[dvips]{geometry}` - this is the preferred method), the input field is initialized with the current value of the command line option/X resource **paper**. E.g., the option `-paper a4r` is translated into the dvips options `-t a4 -t landscape`. Note that no check is performed whether dvips actually understands these options (it will ignore them if it can't); currently not all options used by xdvi are also covered by dvips.

### **dvipsHangTime**

### **dvipsFailHangTime**

These specify the time (in milliseconds) that the printing progress window will stay open after the **dvips** process has terminated. The value of **dvipsHangTime** is used if the process terminates successfully; **dvipsFailHangTime** is used if it terminates with an error. The default values are 1.5 and 5 seconds, respectively. If both values are negative, the window will stay open until it is closed by the user.

## SAVE DIALOG

This dialog allows you to save all or selected/marked pages in the current DVI file. You can save in one of the following formats:

- PostScript (uses **dvips** to convert the DVI file to a PostScript file, just like when printing to a PostScript file).
- PDF (first uses **dvips** to convert the DVI file to a PostScript file, then uses **ps2pdf** to convert the PostScript file to PDF).
- Plain text in ISO-8859-1 or UTF-8 encoding. The latter will preserve more of the special LaTeX characters e.g. from mathematical mode. Note however that e.g. only few of LaTeX's mathematical symbols can be rendered correctly as text; so this functionality works best for plain text documents. If a character cannot be displayed in the selected charset, it is replaced by '\ ' followed by the hexadecimal character code. If a character is not recognized at all, it is replaced by '?'.

The programs for PostScript and PDF conversion can be customized via the command line options or X resources **-dvipspath/.dvipsPath** and **-ps2pdfpath/.ps2pdfPath**, respectively; see the explanation of these options above for more details.

## MODES

The keystroke **Ctrl-m** [**switch-mode()**] switches between three different mouse bindings, which can also be activated via the **Modes** menu (in Motif, this is a submenu of the **Options** menu called **Mouse Mode**). The default mode at startup can be customized via the X resource **mouse-Mode** or the command-line option **-mousemode**. The default startup mode is Magnifier Mode.

**Note:** The modes are implemented by changing the *magnifier()* action. Switching the mode will not work if **Mouse-1** has been customized to an action sequence that does not contain the *magnifier()* action.

### Magnifier Mode

In this mode, the mouse buttons 1 to 5 pop up a “magnifying glass” that shows an unshrunk image of the page (i.e. an image at the resolution determined by the option/X resource **pixels** or **mfmode**) at varying sizes. When the magnifier is moved, small ruler-like tick marks are displayed at the edges of the magnifier (unless the X resource **delayRulers** is set to false, in which case the tick marks are always displayed). The unit of the marks is determined by the X resource **tickUnits** (mm by default). This unit can be changed at runtime via the action **switch-magnifier-units()**, by default bound to the keystroke **'t'** (see the description of that key, and of *switch-magnifier-units()* for more details on the units available).

The length of the tick marks can be changed via the X resource **tickLength** (4 by default). A zero or negative value suppresses the tick marks.

### Text Selection Mode

This mode allows you to select a rectangular region of text in the DVI file by holding down **Mouse-1** and moving the mouse. The text is put into the X primary selection so that it can be pasted into other X applications with **Mouse-2** as usual.

If xdvi has been compiled with locale, *nl\_langinfo()* and *iconv* support, the selected text is converted into the character set of the current locale (see the output of **locale -a** for a list of locale settings available on your system). If *nl\_langinfo()* is not available, but *iconv* is, you can specify the input encoding for *iconv* via the X resource *textEncoding* (see the output of **iconv -l** for a list of valid encodings). If *iconv* support is not available,

only the encodings *ISO-8859-1* and *UTF-8* are supported (these names are case-insensitive).

Note that UTF-8 is the only encoding that can render all characters (e.g. mathematical symbols) of a DVI file. If ISO-8859-1 is active, characters that cannot be displayed are replaced by ‘\’ followed by the hexadecimal character code. For other encodings, such characters may trigger iconv error messages. If a character is not recognized at all, it is replaced by ‘?’.

To extract larger portions of text, you can alternatively save selected pages or the entire file in text format via the **File > Save as ...** menu.

### Ruler Mode

This mode provides a simple way of measuring distances on the page.

When this mode is activated, the mouse cursor changes into a thin cross, and a larger, cross-shaped ruler is drawn in the highlight color at the mouse location. The ruler doesn’t have units attached to it; instead, the current distance between the ruler and the mouse cursor is continuously printed to the statusline.

When activating Ruler Mode, the ruler is at first attached to the mouse and can be moved around. It can then be positioned at a fixed place by clicking **Mouse-1**. After that, the mouse cursor can be moved to measure the horizontal (*dx*), vertical (*dy*) and direct (shortest) (*dr*) distance between the ruler center point and the mouse.

Clicking **Mouse-1** again will move the ruler to the current mouse position, and holding down **Mouse-1** will drag the ruler around.

In Ruler Mode, the following special keybindings extend or replace the default bindings:

- o**      [**ruler-snap-origin()**] Snap the ruler back to the origin coordinate (0,0).
- t**      [overrides **switch-magnifier-units()**] Toggle between various ruler units, which can be specified by the X resource **tickUnits** (‘mm’ by default).
- P**      [overrides **declare-page-number()**] Print the distances shown in the statusline to standard output.

### TOOLBAR (Motif only)

The Motif toolbar can also be customized. The XPM file used for the toolbar icons can be specified via the resource **toolbarPixmapFile**, which should contain a filename that can be found in one of **XFILESEARCHPATH** or **XDVIINPUTS** (see the section **FILE SEARCHING** below for more information on these variables). **Xdvi** will try to split this pixmap horizontally into *n* pieces, where each piece is as wide as the pixmap is high and is treated as an image for toolbar button *n*. This means that each icon should be a square, and that the entire pixmap should have width *n* x *h* if *h* is the height of the pixmap.

The resource **toolbarTranslations** can be used to map icons/buttons to specific actions. The resource should contain a string separated by newline characters, similar to the resources **mainTranslations** and **menuTranslations**. Every line must contain either a spacer definition, or an icon definition:

A spacer definition is a string **SPACER(*n*)**, where *n* is the number of pixels inserted as separator to the following button.

An icon definition is a colon-separated list containing the following elements:

- the index of an icon in the pixmap file (starting from zero);

- a long tooltip string, displayed in the status area;
- a short tooltip string, displayed as popup;
- a sequence of actions to be performed when the corresponding toolbar button is pushed.

To illustrate this, the default value of **toolbarTranslations** looks as follows:

```
xdvi.toolbarTranslations: \
  SPACER(5)\n\
  0:Open a new document (Key\\: Ctrl-f):\n\
    Open file:select-dvi-file()\n\
  SPACER(10)\n\
  1:Reread this document (Key\\: R):\n\
    Reread file:reread-dvi-file()\n\
  SPACER(10)\n\
  2:Go to the first page of this document (Key\\: 1g):\n\
    Go to first page:goto-page(1)\n\
  3:Go to the previous page of this document (Key\\: p):\n\
    Go to previous page:back-page(1)\n\
  4:Go to the next page of this document (Key\\: n):\n\
    Go to next page:forward-page(1)\n\
  5:Go to the last page of this document (Key\\: g):\n\
    Go to last page:goto-page()\n\
  SPACER(10)\n\
  6:Enlarge the display (Key\\: Ctrl+):Zoom in:\n\
    set-shrink-factor(+)\n\
  7:Shrink the display (Key\\: Ctrl-):Zoom out:\n\
    set-shrink-factor(-)\n\
  SPACER(10)\n\
  8:Jump back to the previous hyperlink (Key\\: B):\n\
    Back hyperlink:htex-back()\n\
  SPACER(10)\n\
  10:Print this document:Print:print()\n\
  SPACER(10)\n\
  11:Toggle marks for odd pages (Key\\: 1m):\n\
    Toggle odd:toggle-mark(1)\n\
  12:Toggle marks for even pages (Key\\: 2m):\n\
    Toggle even:toggle-mark(2)\n\
  13:Toggle mark for current page (Key\\: 2m):\n\
    Toggle current:toggle-mark()\n\
  14:Unmark all pages (Key\\: 0m):\n\
    Unmark all:toggle-mark(0)\n\
  SPACER(10)\n\
  18:Display fonts darker (Key\\: Alt-Ctrl+):\n\
    Fonts darker:change-density(5)\n\
  19:Display fonts lighter (Key\\: Alt-Ctrl-):\n\
    Fonts lighter:change-density(-5)\n
```

When the mouse remains over a toolbar button for a certain period, a ‘tooltip’ window is shown, describing what the button does using the *short tooltip string* from the above resource. At the

same time, the *long tooltip string* is displayed in the statusline. The appearance and behaviour of these tooltips can be customized via the following resources:

**tipShell.background**

Background color of the tooltip window.

**tipShell.fontSet**

Font used for the tooltip.

**tipShell.waitPeriod**

The time (in milliseconds) the mouse pointer needs to be over the button before the tooltip is shown. Set it to a negative value to suppress the tooltips altogether.

## GREYSCALING AND COLORMAPS

The greyscale anti-aliasing feature in **xdvi** will not work at its best if the display does not have enough colors available. This can happen if other applications are using most of the colormap (even if they are iconified). If this occurs, then **xdvi** will print an error message and turn on the **-copy** option. This will result in overstrike characters appearing wrong; it may also result in poor display quality if the number of available colors is very small.

Typically this problem occurs on displays that allocate eight bits of video memory per pixel. To see how many bits per pixel your display uses, type **xwininfo** in an **xterm** window, and then click the mouse on the root window when asked. The “Depth:” entry will tell you how many bits are allocated per pixel.

Displays using at least 15 bits per pixel are typically **TrueColor** visuals, which do not have this problem, since their colormap is permanently allocated and available to all applications. (The visual class is also displayed by **xwininfo**.) For more information on visual classes see the documentation for the X Window System.

To alleviate this problem, therefore, one may (a) run with more bits per pixel (this may require adding more video memory or replacing the video card), (b) shut down other applications that may be using much of the colormap and then restart **xdvi**, or (c) run **xdvi** with the **-install** option.

One application which is often the cause of this problem is **Netscape**. In this case there are two more alternatives to remedying the situation. One can run “**netscape -install**” to cause **Netscape** to install a private colormap. This can cause colors to change in bizarre ways when the mouse is moved to a different window. Or, one can run “**netscape -ncols 220**” to limit **Netscape** to a smaller number of colors. A smaller number will ensure that other applications have more colors available, but will degrade the color quality in the **Netscape** window.

## HANDLING OF POSTSCRIPT FIGURES

**Xdvi** can display Encapsulated PostScript (EPS) files included in the *dvi* file. Such files are first searched for in the directory where the *dvi* file is, and then using normal **Kpathsea** rules. There is an exception to this, however: if the file name begins with a backtick (`), then the remaining characters in the file name give a shell command (often **zcat**) which is executed; its standard output is then sent to be interpreted as PostScript. Since the execution of arbitrary shell commands with the user’s permissions is a huge security risk, evaluation of these backtick commands is disabled by default. It needs to be activated via the **-allowshell** command-line option. **NOTE:** You should never use this option when viewing documents that you didn’t compile yourself. The backtick specials are not needed for uncompressing gzipped PostScript files, since **xdvi** can do

that on the fly if the filename ends with *.eps.gz* or *.eps.Z* (and if the first bytes of the file indicate that the file is indeed compressed). This is both safer and more flexible than the backtick approach, since the default file searching rules will apply to such filenames too.

## TYPE 1 FONTS

Using FreeType (version 2), **xdvi** can render PostScript<tm> Type 1 fonts directly, without the route via T<sub>E</sub>X pixel (pk) fonts. The advantage of this is that only one size of each font needs to be stored on disk. Unless the **-notype1fonts** option is used, **xdvi** will try to render every font using FreeType. Only as a fallback will it invoke an external program (like **mktexpk**, which in turn may invoke utilities like **ps2pk** or **gsftopk**) to generate a pixel font from the Type 1 source. The direct rendering of the **Computer Modern** fonts should work out-of-the box, whereas other Type 1 fonts such as the 35 ‘standard’ PostScript<tm> fonts resident in printers may need to be made accessible for use with **xdvi**, unless your system administrator or TeX distribution has already done so (which is the case e.g. for current TeX Live systems). For the 35 PostScript<tm> resident fonts, **xdvik** will search using the **Fontmap** provided with **Ghostscript**, if necessary. Also, the **xdvik** distribution comes with a utility called **t1mapper** to make these fonts available for **xdvi**; see the manual page for **t1mapper(1)** for usage details. This program is likely to be dropped in the future, however, since it is probably not needed anymore.

## SPECIALS (GENERALLY)

Any of the specials used by **xdvi** may be preceded by the characters “**xdvi:**”. Doing so does not change the behavior of the special under **xdvi**, but it tells other dvi drivers (such as e.g. dvips) to ignore the special.

## SOURCE SPECIALS

Some T<sub>E</sub>X implementations or macro packages provide the facility to automatically include so-called ‘source specials’ into a DVI file. These contain the line number, eventually a column number, and the filename of the .tex source. This makes it possible to jump from a .dvi file to the corresponding place in the .tex source and vice versa (also called ‘inverse search’ - jumping from the DVI file to the TeX file is also known as ‘reverse search’, and jumping from the TeX file to the DVI file as ‘forward search’).

To be usable with **xdvi**, source specials in the *dvi* file must have one of the following formats:

```
src:line[ filename
src:line:col[ filename
src:line
src:line:col
src::col
```

If *filename* or *line* are omitted, the most recent values are used. The first source special on each page must be in one of the first two forms, since defaults are not inherited across pages.

You will need a T<sub>E</sub>X implementation that provides an appropriate switch (e.g. *-src*) or a macro package (such as *srcltx.sty* or *srctex.sty*, available from CTAN:macros/latex/contrib/supported/sr-cltx/) to insert such source specials into the DVI file.

For reverse search, the combination *Ctrl-Mouse 1* will make **xdvi** open an editor (the value of the *-editor* command line option) with the file and the line number of the .tex source. See the description of the *-editor* option for more information and example settings.

For forward search, **xdvi** has a *-sourceposition* option that makes **xdvi** jump to the page in the

DVI file corresponding to the given line (or the closest line having a source special) of the specified file and highlight the found region. See the description of the `–sourceposition` option for more details.

More information on setting up various editors for use with source specials can be found at:

<http://xdvi.sourceforge.net/inverse-search.html>

## PAPERSIZE SPECIALS

**xdvi** accepts specials to set the paper size for the document. These specials should be of the form

**papersize**=[\*]*width,height*

where *width* and *height* give the width and height of the paper, respectively. Each of these should appear in the form of a decimal number followed by any of the two-letter abbreviations for units accepted by T<sub>E</sub>X (**pt**, **pc**, **in**, **bp**, **cm**, **mm**, **dd**, **cc**, or **sp**). If an asterisk (\*) appears just before the width, then the measurements refer to the document dimensions (e.g., **pt** as opposed to **truept**). This allows a macro package to vary the page size according to elements of the document; e.g.,

```
\special{xdvi: papersize=*\number\wd\mybox sp,
\number\ht\mybox sp}
```

Except for the asterisk, this format is compatible with **dvips**.

The last **papersize** special on a page determines the size of that page. If there is no such special on a given page, the most recent **papersize** is used, or, if there are no **papersize** specials on any preceding page, then the value of the **paper** resource (or **–paper** option on the command line) is used. Thus the paper size may vary for different pages of the *dvi* file.

If the **paper** resource (or **–paper** command-line option) begins with a plus sign (+), then all **papersize** specials in the *dvi* file are ignored.

## COLOR SPECIALS

The color specials supported by **xdvi** are the same as those supported by **dvips**, except that the literal PostScript color specification (as in the **AggiePattern** example in the **dvips** documentation) is not supported. There are also some restrictions due to the way **xdvi**'s drawing routines are implemented; e.g. the **\colorbox** and **\fcolorbox** macros don't work with **xdvi**. See the section LIMITATIONS below for more information on these restrictions. **Xdvi** supports the same list of named colors as **dvips** does, namely:

**Apricot, Aquamarine, Bittersweet, Black, Blue, BlueGreen, BlueViolet, BrickRed, Brown, BurntOrange, CadetBlue, CarnationPink, Cerulean, CornflowerBlue, Cyan, Dandelion, DarkOrchid, Emerald, ForestGreen, Fuchsia, Goldenrod, Gray, Green, GreenYellow, JungleGreen, Lavender, LimeGreen, Magenta, Mahogany, Maroon, Melon, MidnightBlue, Mulberry, NavyBlue, OliveGreen, Orange, OrangeRed, Orchid, Peach, Periwinkle, PineGreen, Plum, ProcessBlue, Purple, RawSienna, Red, RedOrange, RedViolet, Rhodamine, RoyalBlue, RoyalPurple, RubineRed, Salmon, SeaGreen, Sepia, SkyBlue, SpringGreen, Tan, TealBlue, Thistle, Turquoise, Violet, VioletRed, White, WildStrawberry, Yellow, YellowGreen, YellowOrange.**

Note that these names are case sensitive.

The documentation of the L<sup>A</sup>T<sub>E</sub>X **color** package provides more details on how to use such specials with L<sup>A</sup>T<sub>E</sub>X; see the **dvips** documentation for a detailed description of the syntax and se-

mantics of the color specials.

## SIGNALS

When **xdvi** receives a **SIGUSR1** signal, it rereads the *dvi* file.

## ENVIRONMENT

**Xdvi** uses the same environment variables and algorithms for searching for font files as **T<sub>E</sub>X** and friends. See the documentation for the **Kpathsea** library, **kpathsea.dvi**, for a detailed description of these.

In addition, **xdvik** accepts the following variables:

### DISPLAY

Specifies which graphics display terminal to use.

### KPATHSEA\_DEBUG

Trace **Kpathsea** lookups; set it to **-1** (= all bits on) for complete tracing.

### EXTENSIONMAPS

A list of files to be searched for mime types entries (as for Acrobat Reader). Earlier entries in one of these files override later ones. If this variable is not set, the following default path is used:

```
$HOME/.mime.types:/etc/mime.types:\
/usr/etc/mime.types:/usr/local/etc/mime.types
```

### MAILCAPS

A list of files to be searched for mailcap entries, as defined by RFC 1343. See this RFC or the **mailcap**(4) manual page for a detailed description of the mailcap file format. Currently, only the following mailcap features are supported:

#### **test=command**

The entry is only used if *command* can be executed via the **system()** call and if the **system()** call returns with value 0 (success). The *command* string may contain the format string *%s*, which will be replaced by the file name.

#### **needsterminal**

If this flag is used, the command will be executed in a new xterm window by prepending “*xterm -e*” to the command string.

All other fields in the mailcap entry are ignored by **xdvi**. Earlier entries in one of these files override later ones. If the variable is not defined, the following default path is used:

```
$HOME/.mailcap:/etc/mailcap:/usr/etc/mailcap:\
/usr/local/etc/mailcap
```

For security reasons, some special characters (i.e.: ( ) ‘ \ ; ) are escaped in the argument before passing it to **system()**.

### BROWSER

Determines the web browser used to open external links (i.e., all URLs that don’t start with the ‘*file:*’ scheme and are not relative links in the local DVI file), and to open links for which no viewer has been specified in the **mailcap** files. The value of this variable is a colon-separated list of commands. **Xdvi** will try each of them in sequence until one succeeds (i.e. doesn’t immediately return with status 0). This allows you to specify your



favourite browser at the beginning, and fallback browsers at the end. Every occurrence of `%s` in the string is replaced by the target URL; every occurrence of `%%` is replaced by a single `%`. If no `%s` is present, the URL string is added as an extra argument.

An example setting is:

```
netscape -raise -remote 'openURL(%s,new-window)':xterm -e lynx %s:xterm -e wget
%s:lynx %s:wget %s
```

See

<http://www.cath.org/~esr/BROWSER/>

for more details on the **BROWSER** environment variable.

## GS\_LIB

A colon-separated list of directories to search for **Fontmap** files, etc., as used for Ghostscript. It has the same meaning as it does when running Ghostscript. In **xdvik**, it is used when searching for font files when the map file does not give a file name for the font (this should be quite rare). The command **gs -h** will list the default value that Ghostscript uses. See also the **XDVI\_GS\_LIB** environment variable (below).

## XDVI\_GS\_LIB

This has the same effect as **GS\_LIB** but affects only **xdvi**. Use this when you want to use a different value for **GS\_LIB** when running **xdvi**, but use either the compiled-in default value or some other value when running Ghostscript. If both **GS\_LIB** and **XDVI\_GS\_LIB** are set, then **xdvi** uses **XDVI\_GS\_LIB**. To use the default value compiled in to **xdvi** while still retaining the ability to set **GS\_LIB** for use with Ghostscript, you can set **XDVI\_GS\_LIB** to the empty string.

## TMPDIR

The directory to use for storing temporary files created when uncompressing PostScript files.

## XEDITOR

Determines the editor command used for source special ‘reverse search’, if neither the `-editor` command-line option nor the `.editor` resource are specified. See the description of the `-editor` command line option for details on the format.

## VISUAL

Determines an editor to be opened in an xterm window if neither of `-editor`, `.editor`, or **XEDITOR** is specified.

## EDITOR

Determines an editor to be opened in an xterm window if neither of `-editor`, `.editor`, **XEDITOR** or **VISUAL** is specified.

## WWWBROWSER

Obsolete; use **BROWSER** instead.

## LIMITATIONS

**xdvi** accepts many but not all types of PostScript specials accepted by **dvips**. For example, it accepts most specials generated by **epsf** and **psfig**. It does not, however, support **bop-hook** or **eop-hook**, nor does it allow PostScript commands to affect the rendering of things that are not PostScript (for example, the “NEAT” and rotated “A” examples in the **dvips** manual). These restrictions are due to the design of **xdvi**; in all likelihood they will always remain.

LaTeX2e rotation specials are currently not supported.

**MetaPost** files containing included text are not supported.

**Xdvi**'s color handling doesn't support the `\colorbox` and `\fcolorbox` macros; this is not likely to change in the near future. This also means that e.g. colored tables (as created by the *colortbl* package) may render incorrectly: Text in colors different from the default foreground color may not be displayed. When the page is redrawn (e.g. after using the magnifier), the background color of the cells may overdraw the text.

## FILES

### **\$HOME/.xdvirc**

A file that holds all settings that the user changed via the keys, the 'Options' and the Xaw 'Modes' menu and the dialogs, as X resources. These resources override the settings in **\$HOME/.Xdefaults**. This file is ignored if the `-q` option is used or the **noInitFile** X resource is set.

### **config.xdvi**

An optional configuration file for the Type 1 font setup, which specifies **dvips**-style map files specific to **xdvik**. If used, it should be present in the directory determined by the **TEXCONFIG** environment variable. Its format is similar to configuration files for **dvips**, except that it is only scanned for the names of map files (**p** and **p+** directives).

## SEE ALSO

**X**(1), **dvips**(1), **mktexpk**(1), **ps2pk**(1), **gsftopk**(1), **t1mapper**(1), **mailcap**(4), the **Kpathsea** documentation, and the Xdvi home page at <http://xdvi.sourceforge.net/>.

## AUTHORS

Eric Cooper, CMU, did a version for direct output to a QVSS. Modified for X by Bob Scheifler, MIT Laboratory for Computer Science. Modified for X11 by Mark Eichin, MIT SIPB. Additional enhancements by many others.

The current maintainer of the original **xdvi** is Paul Vojta, U.C. Berkeley.

Code for the **xdvik** variant has been contributed by many people, whose names are scattered across the source files. Xdvi is hosted on **CTAN:dviware/xdvik** and on SourceForge; for the most up-to-date information, please visit:

**<http://xdvi.sourceforge.net>**

Please report all bugs to the SourceForge bug tracker:

**[http://sourceforge.net/tracker/?func=add&group\\_id=23164&atid=377580](http://sourceforge.net/tracker/?func=add&group_id=23164&atid=377580)**