

DVImview

by

Paul Field

Documentation for
DVImview version 0.94

February 13, 1995

DVImview allows you to view and print T_EX generated *dvi* files from the RISC OS desktop. It started as modifications to **Preview** by Graham Toal, Pieter Schoenmakers and Ian Young but ended up as a complete rewrite. The only remaining parts of **Preview** are the files ‘web2c.h’, ‘site.h’ and ‘dviread.c’, and probably a few variable names.

1 Philosophy

DVImview has two purposes. The first is to replace **Preview** by being more robust and using less memory and the second is to allow Draw files to be included in T_EX and L^AT_EX documents.

2 Loading a file

A *dvi* file can be loaded by double-clicking it or by dragging it or the directory in which it resides onto the DVImview icon on the icon bar. In the latter case, the file *must* be called *dvi*.

DVImview loads the first page of a file immediately, and any subsequent pages in the background. Each page is available for viewing as soon as it has been loaded completely.

The title bar of a window shows the name of the file and the cardinal number of the page being shown possibly followed by a message in brackets. Messages may be:

Loading When pages from the file are still being loaded.

Incomplete When there has been an error and some pages are missing from the end of the file.

3 Viewing a document

Once loaded, the first page of the document is displayed in a window. Which page is displayed can be altered from the window’s menu (see figure 1) using the **Next**, **Previous** and, for larger jumps, **Goto page** items.

The scale of this window can be altered using by choosing **Scale** and using the standard ‘scale view’ dialogue box.

Figure 1: The View Menu

The other options in the first part of the menu are **New view** which, unsurprisingly, spawns a new view on the document, and **Save page** which saves the page being viewed as a Draw file.

Options in the second part of the menu (below the dotted line) concern the document as a whole rather than the page currently being viewed. **Save** allows a range of pages to be saved as separate Draw files in a directory and it will come as a great shock to discover that **Print** allows pages to be printed¹.

Remember, **DVIview** loads your document in the background so that you can start viewing quickly. However, you can only view, print and save pages that have actually been loaded. If you find that you can't access a particular page then just wait a few seconds and try again.

4 Keyboard shortcuts

There are various keyboard shortcuts available for moving around your document:

Page Up	Move to previous page
Page Down	Move to next page
←→↑↓	Scroll around current page
^Q	Zoom out
^W	Zoom in
Print	Guess :-)

If you would like other keyboard shortcuts then please ask.

5 Fonts

The \TeX and \LaTeX fonts are automatically installed when the `!TeXFonts` application is seen by the Filer. This means that other applications will have these fonts available to them, which is handy if you are exporting pages as Draw files and want them to be displayed properly. Note that the \TeX fonts have letters in different places to standard fonts and so you'll have to use `!Chars` to select characters if you want to use \TeX fonts in, say, `Impression` or `TechWriter`.

If **DVIview** cannot find a particular font then it will generate a 'font not found' error and substitute `cmr10`. If `cmr10` is missing then **DVIview** will use the system font (which basically just makes a mess).

Figure 2: The Print Dialogue Box

6 Printing

Printing from `DVIview` has several advantages over other `TEX` printing systems. Firstly, `DVIview` prints via the `!Printers` application which means that it can print to a very wide range of printers. Secondly, you can include Draw files in your documents. Finally, `DVIview` has a number of printing options so you can print documents just as you want them: double sided, as a pamphlet (2-up or 4-up) or as a 'thumbnail' print to get an overview. You can also print multiple copies and have them collated if you wish.

Figure 2 shows the print dialogue box. The various options are:

From page, to This specifies the range of pages to print. When you first open the dialogue box the values default to the whole loaded document.

Copies Guess :-)

Print in reversed order Basically, if your printer outputs paper face up then select this for the pages to be ordered correctly in the printer's output tray.

Collate pages Select this if you're printing multiple copies but think twice if you're using a Postscript printer. When selected, pages are printed in the order 1,2,3... 1,2,3... which is usually what you want. Without it selected, pages are printed in the order 1,1,1,1... 2,2,2,2... which might seem silly, but it's much faster for a Postscript printer to print like this.

Pause between pages Left as an exercise for the reader :-)

Print types There are three main styles of printing:

1 page/sheet This is the usual print type. If you want to do double sided printing then use 'odd pages' to print one side of the sheets, feed the sheets back into the printer and print using 'even pages'. You might have to print in reversed order the second time round depending on what your printer does with the paper. Be careful if you try this on an odd number of pages: 'odd pages' will print one more sheet than 'even pages' (or vice versa if your range starts with an even number). This will mean that you'll have a sheet left in the printer or, if you use reverse, the pages will be printed on the wrong sheets. If someone asks me nicely, I might change the code to produce a blank sheet in the appropriate circumstances and so avoid these problems.

¹I was being sarcastic, but it *will* be a shock to long-time users who had probably given up hope of ever seeing a working print option in `DVIview`.

Thumbnail This print type gives you an overview of your document. It simply fits the number of pages that you specify on each sheet. So, you might get pages 1,2,3,4 on the first sheet and 5,6,7,8 on the next.

Pamphlet This print type prints pages on sheets in such a way that the sheets can be folded up to produce a booklet. 2-up printing puts 4 pages on each sheet (2 on each side) so, by folding the sheet in half, you can make, say, A4 sheets into an A5 booklet. Because it prints double-sided, it will print half of the pages and then prompt you to place the printed sheets back into the printer's input tray (or feed them in by hand or whatever it is your printer makes you do). 4-up printing also puts 4 pages on each sheet but it puts them all on the same side. Sheets are folded into quarters to make a booklet (and it's great fun working out how to fold the sheets :-)).

The idea of the printing system is to do as much as possible for you. So, you don't have to worry about specifying a scale for thumbnail or pamphlet prints (certain systems don't make a good Impression in this department :-)). However, there are a couple of things missing at the moment which I might get round to adding in a release or two. Currently only A4 pages and printer paper are supported and there's no landscape mode option (but then this is true of DVIVIEW in general — not just the printing). You also can't specify a scaling for your pages and there's no way to specify only part of a 2-up or 4-up print (for example, if a sheet gets scrunched by the printer you might just want to reprint that page). Let me know if any of these missing features are vital to you or there's anything else you'd like added.

You may find that, when printing 4 pages per sheet, you lose the page numbers of the two lower pages (this is likely to happen if your printer has a large margin at the bottom of the page — many inkjets do). You can avoid this by loading the document with a smaller 'top' page offset (see the **Page offsets** item on the icon bar menu).

6.1 Printing and fonts

The T_EX fonts provided with V0.92 onwards *will* download to Postscript printers (hooray!). However, you get a font downloaded for each size of font you use (i.e. you might get **cmr8** and **cmr10** downloaded rather than just a general **cmr** which is scaled to the right size) so your printer may run out of memory. To try to avoid this problem there is a **Min. fonts** option on the main menu which, when enabled, attempts to reduce the number of different fonts used in a document by picking a 'standard' font and scaling it to produce the others (e.g. if you use **cmr8**, **cmr10** and **cmr12** in your document then only **cmr10** will be used and it will be scaled to the appropriate size for the others). Unfortunately, different sized T_EX fonts actually look different — they aren't just scalings. You'll notice this particularly on larger point size text such as headings. You might not care, or you might like to use the **Min. fonts** option as a 'draft mode' to speed up printing. Note that **Min. fonts** is applied to documents when they are loaded.

As of V0.93 the fonts are hinted (thanks to Chris Taylor) and so will print out fine on low-resolution printers.

7 Including Draw files in your documents

Simply put the line
`\special{drawfile = filename}`

Figure 3: The Author — A self portrait

at the point where you want the top-left of the Draw file to appear. You can use the symbol '@' to represent the directory that the dvi file is in i.e.

```
\special{drawfile = @.Diagrams.Picture}
```

in the file '\$.Report.dvi' would include the Draw file '\$.Report.Diagrams.Picture'. The Draw files on a particular page are only loaded when that page is being viewed or printed thus saving memory. If there is not enough memory to load them the page will be drawn without them.

There is a macro `\drawfile{width}{height}{filename}` in 'Doc.tex' that will make space for and include a Draw file if you give it the size of the diagram. As an example see figure 3.

There is currently no direct support for including sprite files in documents. You can, however, drop your sprite onto !Draw, save the resulting Draw file and import that.

7.1 Problems

There are a few known problems with Draw files and `DVIview`.

It would make life much easier if this macro could read the bounding box of the Draw file. Unfortunately, I am fairly new to `TEX` and I don't even know if this is possible so if there are any wizards out there who can help me then please get in contact.

Fonts used in Draw diagrams are not currently downloaded to Postscript printers. I'm doing a fairly major overhaul of `DVIview` for the next release, so I've left fixing this bug until then.

If you'd like to use the `TEX` fonts in your Draw diagrams then you can but you'll have to use !Chars to input the characters. `TEX` font characters are not laid out according to the ASCII character set.

One final note. Not being a registered developer, I only have access to Acorn's old Draw file routines and so `DVIview` cannot display or print things like rotated text. I will be taking advantage of the new Drawfile module as soon as I get a chance.

8 Coping with a small amount of memory

Large dvi files can be loaded in chunks by using the **Start Page** item in the icon bar menu. Set this to the first page that you wish to see. For example, if you load a dvi file and it only loads up to, say, page 15 before running out

of memory, enter 16 as the start page and reload the file. Pages 16 to (about) 31 will be loaded. This is a very bodgy approach and large files take a long time to load. I'm working on replacing the file code (which wasn't mine) with something rather nicer, including a virtual memory system which will only load pages when you view them.

9 Remarks

A few things are worth noting about version 0.94 of `DVIview`:

- When a page is viewed (i.e. has a window open onto it) a Draw diagram is created and used to perform redrawing in the window. This is a bit slow but was easy to implement and is perfectly usable — remember to set a large font cache to speed things up.
- If a page has multiple windows onto it only one Draw diagram is created.
- When all the windows onto a page are closed the Draw diagram is removed and the memory it used freed.
- If there is not enough memory to create the Draw diagram then the window will be blank. However, once enough memory becomes available the Draw diagram will be created and the page will be seen in the window.
- `DVIview` uses RISC OS outline fonts to draw characters. The advantage of using outlines is that they only take about 20% of the disc space needed to store a full set of `pk` files and they can be plotted at any point size. The disadvantage is that you are limited to the fonts provided (although for most people that won't be a problem). There is (currently) no automated way of generating outline fonts from `metafont` files.
- Unlike `Preview` all errors should be trapped properly and should not cause the program to exit. (Faulty `dvi` files and missing `tfm` files are most likely to cause problems because the code that deals with them wasn't written by me and is not designed with friendly error handling in mind). If you find a bug then let me know.
- `DVIview` assumes A4 paper. Some `dvi` files (e.g. from America) have not been formatted for A4 and so may appear off centre. You can use the **Page offsets** item on the icon bar menu to alter the position of the text on the page. The offsets will apply to new pages loaded — not to existing pages.

10 Copying and altering the program

You may freely distribute this software (i.e. `DVIview` and `!TeXFonts`) provided that:

1. No charge is made for it.
2. It is not distributed as a 'freebie' with commercial software.
3. *All* the files are distributed unchanged.
4. *All* the files are distributed unchanged.²

²You might think that this is the same as the last point and you'd be right. However, I have found variants floating about and I'd prefer to know what's going on. If you want to change something and distribute the files then just ask.

You may modify the software, provided that you do not distribute the modified program. Instead, send the alterations to me and I'll include them and an acknowledgement of your work in the next release (which I'll send to you — email preferably). The source code is not provided with this release but I'm happy to send it to anyone who wants it.

11 Registering

In previous releases, I asked users with email addresses to register. There are a lot of people using `DVIview` now and using the register for announcements was become a burden so you don't have to register any more. You can still email me and say "hi" if you like.

I will make announcements of new versions on the `comp.sys.acorn` newsgroup but please feel free to email or write to me if you want to know the latest version or if you have complaints, praise, features you want added or whatever.

12 Newsletter for Acorn T_EX Users

Dick Smith, a `DVIview` user, is fed up with the lack of support of T_EX on Acorn machines from groups such as the UK and Worldwide T_EX Users' Groups and was thinking of publishing an occasional newsletter for Acorn T_EX users. It wouldn't be flash but would keep people up-to-date. If you think this is a good idea then let me know and I can tell Dick whether there appears to be a demand for it.

13 Contacting the author

My email address is: `paulf@dcs.qmw.ac.uk` (Until mid-1995 at least)

I can also be contacted at:

346 Chadwell Heath Lane

Chadwell Heath

Romford

Essex

RM6 4YH

UK

Telephone (from the UK): 0181 598 9676

Telephone (non-UK): +44 181 598 9676

14 Versions

- 0.91**
 - Missing fonts are replaced by `cmr10`.
 - Dragging a directory to the `DVIview` icon now works (Big oops there).
- 0.92**
 - The T_EX fonts will now download to Postscript printers (The L^AT_EX ones won't because they are bitmap fonts not outlines)
 - A 'Start page' can be specified so that large `dvi` files can be loaded in chunks.
 - A range of pages can be saved in one operation.
 - The left and top offsets of a page can be altered.

- 0.93
 - The $\text{T}_{\text{E}}\text{X}$ fonts have been reorganised so that they are all in the same font family (i.e. `TeX.cmr10` rather than `cmr10`. This will stop the font list in other programs being 5 times the height of the screen).
 - Chris Taylor has provided new $\text{T}_{\text{E}}\text{X}$ and $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ outline fonts which are hinted. This means better output at small point sizes (and on low-resolution printers) and that $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ fonts will now download to Postscript printers.
 - Added keyboard shortcuts
 - Printing has returned with a vengeance. Completely new printing code will download fonts to Postscript printers and allow multiple `dvi` pages to appear on each printed sheet.
 - The **Min. fonts** option has been added to provide a ‘draft mode’ for Postscript printers.
- 0.94
 - Extended printing facilities: Multiple copies, collation, double-sided printing, thumbnail printing and pamphlet printing (two-up and four-up).
 - Changed the magnification menu to a Style Guide compliant ‘Scale view’ dialogue box.

15 Acknowledgements

Thanks to Chris Taylor for the new fonts and Robin Watts for sorting out the $\text{T}_{\text{E}}\text{X}$ distribution on Uniqueway’s CD and thus forcing me to produce a new version (and for pestering me to add printing). Hi to my Ph.D. supervisor Don Beal who, if he ever sees this, will know why I never have any work to show him. Hi also to Andy and Jules and finally to Dunc, without whom the C Acorn User Group journal would be considerably smaller.

A very big thanks to the people who actually thought `DVIview` was worth sending me some money for. `DVIview` is completely free and I don’t expect anything for it, nevertheless, it’s very nice that my efforts are appreciated.