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# Quite A Box Of Tricks (1.2b)

## Credits

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The software includes portions from the Independent JPEG Group, and the ZLib compression library.

## Quite A Box Of Tricks

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### How do I run Quite A Box Of Tricks?

Quite A Box Of Tricks is a plug-in for Acrobat Exchange. This means that before you can run it, you need to put it into the Exchange plug-ins folder. The location of the folder depends on where you installed Acrobat, but on the Macintosh it is called **Plug ins** and on windows it is called **plug\_ins** (with an underscore).

You need to be running Windows 95 or above (including Windows 98) or Windows NT 4.0 or above; or MacOS 7.5 or above on a Power Macintosh. Windows 3.1, 68K Macintosh, and Unix systems are not supported. Acrobat Exchange is required; the free Acrobat Reader will not work.

If this PDF file is put in the same place, and has the same name as the PDF file, it will be available whenever you click the ? button on the Box Of Tricks screens. Box Of Tricks will automatically open the guide to the section which applies to the current screen.

On the Macintosh, the plug-in should be called **Quite A Box Of Tricks** and this file should be called **Quite A Box Of Tricks Guide**.

On Windows, the plug-in should be called **qiplus32.api**, and this file should be called **qiplus32.pdf**.

Once the plug-in is installed, and Acrobat Exchange is restarted, you should see a new menu item appear: **Plug-ins > Quite A Box Of**

**Tricks.** That gives access to all of the features of Box Of Tricks in one place.

As a short-cut, you can also start the Info function of Box Of Tricks by clicking the **i** icon with an arrow that appears on the Exchange toolbar.

After installing the plug-in it will run in *demo mode*. In this mode every page changed will have an “X” placed over it, but all the parts of Box Of Tricks can be tested. **Warning: These “X” marks *cannot be removed* so take care not to save your files and destroy your original documents!**

When you purchase a license you will receive a serial number and private code. Click the **Licensing** button, type your details and the two numbers. The serial number you receive is going to look like this: **1234-5678-1234-1234**, with 16 digits in all. The private code is a 4 digit number like **9876**. If you don't seem to have both, check to see if they have been written together like this:  
**1234-5678-1234-1234 9876.**

The **Licensing** button is on the **About** screen. This screen is shown when you first run Box Of Tricks, and can be pulled up at any time by clicking the **??** (two question marks) button on a Box Of Tricks screen. This will show the serial number, but never the private code, so you should keep both in a safe place.

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## What can I do with Box Of Tricks?

Box Of Tricks is designed to solve many problems which were previously time consuming, expensive, or just impossible to do with a PDF file.

It has five main screens, each with a range of functions.

### Shrinking

- Allows many PDF files to be reduced in size for e-mailing, web use, or to fix a poor choice of options in Distiller.

### Colour conversion

- Convert RGB to CMYK in PDF documents. On MacOS and Windows 98, ICC profiles can be used. This may be essential for some methods of printing colour.
- Convert all spot colour to process (CMYK).
- Convert PDF files to greyscale. This can reduce the size, and may print more cleanly to a black and white printer.
- Convert all text in a PDF file to black. Useful if a document with coloured text (e.g. links) is to be printed in black and white, to avoid the text becoming shades of grey. This can also be un-done, restoring text to its original colour.

### Form field management

Merge form fields into documents or remove them. This can reduce document size, and avoid problems where form fields change or disappear during printing.

You can also remove annotations (notes, and the many new types of annotation in Acrobat 4.0). This avoids the possibility that they will print by accident. Or, you can make annotations into a part of the document, so they cannot be removed and will always print.

### Transformation

- Thicken hairlines (very thin lines) in PDF files. This can be valuable if printing at very high resolution, since thin lines may become so thin that they are invisible.
- Mirror, scale, or rotate pages by any angle.

### PDF Info

- Get full details on the images and text in a file, including type (RGB, CMYK etc.), compression ratio, and JPEG level. For text, find the font used and whether it was embedded and/or subsetted.

- Search a document for RGB images, or find the largest images.
- Recompress or subsample individual images in a document.

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## What can't I do with Box Of Tricks?

Although box of tricks has many powerful functions, it's important to understand its limitations too. Some of the important ones apply to colour processing.

- Box Of Tricks is *not* a complete colour management solution. Although it can convert RGB to CMYK, optionally with ICC profiles, it cannot do reverse translations such as CMYK to RGB or convert one CMYK to a different CMYK. Also, even if an ICC profile is used for conversion, Box Of Tricks cannot control how Acrobat displays the colours in the file, so no monitor profile is possible.
- Box Of Tricks can convert all of the spot colours in a file into process colours or greyscale, but it does not provide any way to check what spot colours are included, to convert them selectively, or to convert other types of colour into a spot colour.

In addition the current version of Box Of Tricks does not support any automation or batch processing, though it does remember the settings you used last time.

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## What about compatibility?

This version of Quite A Box Of Tricks was written for Acrobat Exchange 3.0, 3.01, or 4.0. Before upgrading to a later version of Acrobat you are advised to check the latest information on our web site, <http://www.quite.com>. It will not work with earlier versions of Acrobat.

PDF files have a version number, and confusingly this is not the same as the Acrobat version number. Acrobat 3.0 writes PDF version 1.2, while Acrobat 4.0 writes PDF version 1.3. If you open a newer version of PDF with Quite A Box Of Tricks you will get a warning message - again you are advised to check for the latest version of Box Of Tricks using our web site.

After Box Of Tricks has processed a file, it is only compatible with If a file started out compatible with Acrobat 3.0, it will *still* be compatible after any processing. But if it was only compatible with Acrobat 4.0, it will usually remain compatible only with Acrobat 4.0.

To emphasise: processing a file with Quite A Box Of Tricks, won't change its compatibility.

Also, any processed file will no longer be an ASCII PDF (as if it were created by Distiller with the ASCII setting). This should not usually be important, as there do not seem to be any applications that require an ASCII PDF.

*In summary:* Box Of Tricks will read any PDF file from Acrobat 4.0 or below, but the files it writes are compatible only with 3.0 or above. Before working with any release over 4.0x, check for updates to this software.

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## What's new in Quite A Box Of Tricks 1.2?

Most of the changes in Quite A Box Of Tricks 1.2 are invisible. They are there to support the features of files made with Acrobat 4.0, though Quite A Box Of Tricks still works fine with Acrobat 3.0.

The most noticeable change is in the [Form field management](#) function, which can now work with the many new annotation types in Acrobat 4.0.

Acrobat 4.0 seems to raise a number of unexpected issues. More information can be found in the following sections:

- Is JPEG compression in Distiller 4.0 faulty?
- Are ICC profiles broken in Distiller 4.0?
- What's this about annotations?
- I get errors using the text touch-up tool. Why?

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## How do I get support?

We want you to be able to use Quite A Box Of Tricks to solve your problems. If you have a question that is not answered in these pages, or you think you have found any sort of bug, check on our web site <http://www.quite.com/> for the latest information. If that doesn't help, please contact your reseller or send an e-mail to **support@quite.com**.

All software has bugs, and although we've had the help of hundreds of beta testers for Quite A Box Of Tricks, there may still be some lurking. We need *your* help to tell us when you find a bug, so that they can be fixed as quickly as possible. Please don't assume that someone else has already found it and told us about it. Thank you!



## Shrinking

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### How can Quite A Box of Tricks shrink my PDF files?

When you create a PDF file with PDFWriter or Distiller, you should have noticed that there are a number of compression settings. These affect both the quality and the size of the PDF files you produce. In general, if the quality is higher, then so is the size. If you are prepared to accept a lower quality, you can have a smaller PDF file.

Not every setting reduces quality. For instance, “compress text and line art” should always be left switched on, as this does not affect the quality in any way; and compression of images should never be completely off: subsampling/downsampling off and manual ZIP (8 bit) compression will preserve images exactly.

If you have already made a PDF file, you may wish to reduce the size, and you may be willing to see the quality reduce to achieve this. The Shrink function in Quite A Box Of Tricks can make some savings that

you could have made with different Distiller or PDFWriter settings. In some cases you can produce a smaller file than you might have been able to when using Distiller; and, since PDFWriter offers less compression choices, you can often shrink files made with PDFWriter.

Also, Distiller 4.0 does not compress files in the same way as 3.0, and there is the potential for Quite A Box Of Tricks to make savings for you. See [Is JPEG compression in Distiller 4.0 faulty?](#)

Quite A Box Of Tricks has four techniques for reducing file size:

1. Images can be reduced in resolution. For instance, if you have an image at 150 pixels per inch (dots per inch, or dpi), and you are prepared to reduce it to 75 dpi, then the image may be only 25% of its original size.
2. Images can be recompressed. Distiller and PDFWriter offer a choice of compression schemes. These include “ZIP”, which maintains the image exactly, and five JPEG choices. “JPEG low” compresses less, but it is almost impossible to see any drop of quality for a photograph. “JPEG high” compresses much more, but you will see a lower quality. Quite A Box Of Tricks also offers “JPEG Extra”, which can be substantially smaller than “JPEG high”.
3. Text and line art can be compressed, if it they were not made that way originally.
4. If the ASCII option was accidentally used in creating the file, it will be removed; this can reduce file sizes by almost 20% with no loss of quality.

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## Will every PDF file shrink?

Not every PDF file will shrink. If the text and line art is already compressed, and the ASCII option was not used, the only savings can

be made with images. So, a file with no images cannot usually be made any smaller.

Images can usually be shrunk, but when you do so the quality may decrease. For every file, there is a quality which is acceptable, and which you will not want to go below. You can in theory reduce every image to 1 dpi, which will be a series of one inch coloured squares; but that is not likely to be useful.

It is up to *you* to decide what quality is acceptable to you. Box Of Tricks makes it easy to experiment with different settings.

Remember that the file will not shrink on disk until you use **Save As**. Simply using **Save** will always make a file larger, no matter how much shrinking you have done.

If you're using the demo version, it puts an "X" over each page. These "X" do use a little space, so if there was not much space to save, the file may even get larger! Remember that you won't be able to remove those "X" marks. Don't save over your original file!

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## What does the Apply button do?

The **Apply** button will use the settings on the shrink screen, to process images on either the current page, or in the entire document.

The first time you use **Apply** for a document, it will also compress text and line art in the entire document.

In detail, each image is processed as follows.

1. A check is made to see if the image appears more than once. This is important, because the image may be used at different sizes in the document. The largest appearance of the image is used to calculate its current dpi.
2. If you have selected **Preserve screen shots**, the image is scanned to see if it is likely to be a screen shot. (This cannot

always be accurately determined). If the image seems to be a screen shot, it is simply compressed with ZIP compression and we skip to step 5.

3. In all other cases, if you have asked to subsample the image, it will be subsampled to the specified resolution (dpi) value. This does nothing if the image is already smaller than the requested dpi - it is not enlarged.
4. The image is now compressed using the specified compression. If the compression is JPEG, a second compressed copy is made using ZIP, because this is sometimes smaller. Whichever of these is smaller is kept, the other is ignored.
5. The size in bytes of the newly compressed image is compared with the image currently in the document. If the new image is smaller, it replaces the current one on every page where it is used. Otherwise, the new image is thrown away.

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## What does the Get Current Size button do?

The **Get Current Size** button on the Shrink screen will go through the PDF file and work out how much space is used by all of the images in the page, and also all text and line art. When the calculations are complete, the **Get Current Size** button will disappear, and be replaced by the answers.

You can use this to decide whether a file is worth bothering to shrink, before using the **Apply** button. You don't have to use the **Get Current Size** button before using **Apply**, because **Apply** will start by doing calculations if it has to.

The Shrink screen will also show how much space has been saved by compressing or subsampling images, or by compressing text and line art.

The figures you calculate will remain until the file is modified, or saved. If it is modified (for instance, by deleting a page), you will have to calculate again, and the record of space savings will start again at zero.

**Get Current Size** always works out figures for the entire file. It ignores the scope (current page/entire document).

Note that the figure for text and line art may occasionally show the word “shared”. This means that Quite A Box Of Tricks has detected that the same page content is reused in more than one page. This is unusual, but possible. Box Of Tricks will not attempt to compress any text and line art if part of it is shared, as compressing would make separate copies of the shared information. This could end up making the file larger, not smaller.

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## What does the Restore button do?

You can use the **Restore** button if you don't like the results of shrinking. For instance, you can use this if the quality is now too low.

You can restore the entire document, or just the current page, by selecting from the Scope list.

Restoring makes it very quick and easy to try different compression options.

Restoring is not an “Undo” which removes only the last action. It takes the images on the page or document back to the state they had before you started shrinking.

If you modify the document, for instance by deleting a page, or if you save the file, you can no longer restore. Any future changes that you make with **Apply** can only be restored to this point.

When you use **Apply**, the original image will be used if possible. For instance, if you have a 200 dpi image and reduce it to 80 dpi, then

reduce it to 70 dpi, it is the original image, not the 80 dpi image, that is reduced. In effect, a restore is performed on the image.

However, if you want to compress an image *less*, for instance if you subsampled it to 50 dpi and now want to try 70 dpi, you should use **Restore** first. That’s because the newly compressed image will be larger than the 50 dpi image, and so will not be used.

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## What is “text and line art”?

Adobe’s products use the option “compress text and line art”, and we use the same term. But the name does not give the full story.

A better term might be “page contents”. The page contents contain all of the drawing instructions that describe what you will see on the page.

- The page contents include all of the text on the page, but not any fonts.
- The page contents don’t usually include bitmaps or images, but do contain a few instructions to indicate where the images will be placed - so even a page with nothing except images will have some page contents.
- Very small images may be called “inline images”. These are usually images of 8K or less. They will be kept right in the page contents. This helps to reduce file sizes.

Page contents usually compress well. There is almost never any reason to leave them uncompressed, because the quality is not altered by compression.

When Acrobat tools, or Box Of Tricks, compress text and line art they will use ZIP compression. It also removes the effect of the ASCII option in Distiller or PDFWriter. This option increases file sizes by up to 25% for no real benefit.

Box Of Tricks will compress the page contents for every page, the first time you use the **Apply** button. It only needs to do this once.

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## What is the rest of the space in the PDF file used for?

If you add up the space used by text and line art, it won't equal the size of the file. Some of the other things using space in a PDF file, which shrinking won't affect, are listed below.

- Fonts. Embedded fonts may use a good deal of space (up to 100K for large and complex fonts). Even fonts which are not embedded may need several hundred bytes to give the information needed by Acrobat Reader to find or substitute the font accurately.
- Links, bookmarks etc. Each link or bookmark will use space. This is usually a small proportion of the file, but heavily cross-referenced files may turn out to be more than 50% links. Adobe FrameMaker 5.5 puts in a dummy link for every paragraph, so the files it produces may be larger than expected.
- Form fields. These too use space, sometimes more than expected if form fields are used to put navigation throughout a large document. See [Form field management](#) for some options in reducing the space used by form fields.
- Overheads. The PDF file format has to contain information about all of the objects in the file, including each page, and every image. These overheads are usually not a large proportion of the file.
- Wasted space. Each time you Save a PDF file, the changes you make are added on the end. So **Save** always makes a file longer, even if you delete pages or run Shrink. To reclaim this wasted space you must use **Save As**.

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## What is image subsampling?

Subsampling, simply put, throws away information. For instance, if you have an image at 300 dpi, you can reduce it to 150 dpi by throwing away every other pixel in the image. Distiller does this when you select the downsample or subsample option, and Box Of Tricks will also do this when shrinking (if your settings ask it to).

Often images are scanned and stored at much too high a resolution. For instance, 150 dpi to 200 dpi is usually enough for photographs that are to be printed on any common desktop printer at resolutions up to 800 dpi. So subsampling can be a valuable way to reduce space. Nevertheless you should check the quality yourself to see what effect you are having on important files.

Subsampling is almost never a good thing for screen shots, where every pixel matters. For this reason, Box Of Tricks offers a **Preserve screen shots** setting. When this is on, Box Of Tricks analyses each image to see if it is probably a screen shot, and if so, it does not subsample (and always compresses only with ZIP). Box Of Tricks can only *guess* whether a specific picture is a screen shot, but it usually seems to guess right. However, if a screen shot has *already* been compressed with JPEG, it is much less likely to be recognised because of the small changes made by JPEG compression

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## What do the compression types mean?

The choice for colour is between ZIP and several types of JPEG. The choice for black and white (monochrome) is between ZIP and CCITT group 4. So, what is the difference?

- ZIP is a very effective way of compressing files so they can be retrieved exactly as they started; that is, it is *lossless*. ZIP can be used for any image, and the quality will not be affected in any way. Box Of Tricks uses a special technique of compressing each



image twice, once as ZIP. If the ZIP version is smaller it will be used anyway.

- CCITT group 4 is also lossless, and it is specially designed for black and white images (not shades of grey, just black and white). It is actually based on the compression used by fax machines, and it is very good at compressing typical black and white images - drawn lines or scanned text. For that kind of original, it will compress better than ZIP, so we recommend its use.
- JPEG is always *lossy*. That is, you do not get back exactly the same collection of pixels and colours that you started with. It is specifically designed to compress photographs, not as a general purpose tool (the “P” stands for Photographic). It makes use of specific properties of typical photographs and a good understanding of the way the human eye works, to make the changes in such a way we are less likely to notice them. By having some freedom to change images, JPEG can make dramatic space savings.

The more freedom JPEG is given, the more it will compress a file, but the effects will start to become noticeable. The gentlest compression Distiller or Box of Tricks will do is called “JPEG low”. At this level of compression it is almost impossible to detect a change in a photo, even for the most demanding work. Distiller and Box of Tricks have a range of other settings, leading up to “JPEG high”. This will usually have a noticeable effect. Box Of Tricks offers one more setting, “JPEG extra”. This is smaller still - but the quality is poorer still.

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## What compression settings should I use?

We can't really answer that for you, because only you know what kind of work you are doing, and how demanding the final results will be. We have collected five settings, which match common needs, but we encourage you to experiment. If you have time, you can apply

different settings page by page or even - using the Info tool - image by image. The Info tool also lets you find the largest images quickly, so you know where to concentrate.

These are the settings in the initial release of Box Of Tricks.

- *Lossless* guarantees the image is not changed in any way, but makes it smaller if better compression is available. This may be useful if a file was made with compression off, or the ASCII setting on, in Distiller or PDFWriter, or with Acrobat 2.1 which compressed less well. It will not usually be able to reduce the size of any image already compressed with JPEG.
- *Chosen for press* is a very high quality setting, which is probably suitable for use with professional printing. It may not reduce files in size unless the person distilling it forgot or chose not to compress; or the images were scanned at much too high a resolution. Because of the high costs associated with printing on a press, you should always obtain and check proofs that show what the final results will look like.
- *Chosen for printing* is intended for documents that must look good when printed on typical desktop ink-jet or laser printers.
- *Chosen for screen* is intended for documents that will mainly be viewed on screen. These are likely to produce adequate, if not spectacular, results when printed. It is recommended that internet documents are designed for screen; few users have expectations of perfect printing and so it is almost never worth burdening all users with much larger files to support this.
- *Chosen for smallness* is intended to produce very small files, with images that won't look great but should be recognisable. This may be a good setting for files for use on the web, if fast download times are more important than quality.
- *Rough layout* removes almost all of the detail from images. The pages will be recognisable, and the text will not be affected. This

may be very valuable for making small files to e-mail to people who are only interested in the text, and seeing the general layout of the page.

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## My file didn't shrink - why not?

Here are some reasons a file might not shrink.

- You may not have used the **Apply** button, or it may not have been able to reduce space. For instance, a file with no images may not be capable of being shrunk. Or, if a file contains images at 72 dpi, and you choose 100 dpi for shrinking, they aren't likely to get any smaller. The information at the bottom of the Shrink screen will show you Box Of Trick's estimate of how much space will be saved.
- You may have used **Save** rather than **Save As**. Only **Save As** will reclaim space.
- Optimizing the file may make it larger! If you select **Optimize** when you **Save As**, Acrobat first tries to make the file smaller, by recognising duplicated objects. However, this may not make any difference. Then, optimizing writes extra information to the PDF file to allow it to be retrieved a page at a time from the Web. This information, though useful, does make the file a little larger.
- How are you finding out the file size? There are a surprising number of different ways to find out the size of a file, and they don't always give the same answer! In Windows, locate the file in Windows explorer, right-click on the icon, and select Properties. In the Macintosh, locate the file in the Finder, and use Command+I. You can also use **File > Document Info > General** in Exchange, but the figure is only accurate just after a file is opened, or just after it is saved.

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## Why doesn't this image have the resolution and compression I asked for?

There are several reasons why Box Of Tricks may not appear to change an image's resolution, or compress it with the chosen compression.

- If the image doesn't get any smaller after it has been processed, it is ignored, and the original is left instead. For instance, suppose you have a 100 dpi image compressed with "JPEG high". If your settings ask for it to be reduced to 75 dpi and compressed with "JPEG low", this will probably produce a larger image, and so Box Of Tricks is smart enough to leave it alone. If you are trying a range of settings, Box Of Tricks will keep the smallest image; if you want to try something less aggressive, use the **Restore** button first.
- If the image seems to be a screen shot and the **Preserve Screen Shots** setting is in effect, it won't be subsampled, and it will only be compressed with ZIP.
- If the image is a inline image, a very small image mixed with text and line art, it is not altered in any way. See [What does the image information mean?](#)
- Box Of Tricks always makes a copy of each image with ZIP compression as well as the requested compression, just in case it is smaller that way. If the ZIP copy is smaller, it is used instead.
- In certain, unusual, cases, an image may be used in more than one place in a file, possibly at different sizes. In this case, Box Of Tricks uses the copy placed at the largest size to calculate the dpi.
- Some images may be part of *form xobjects*, which are special collections of PDF objects. This includes the case where images had OPI comments in the original PostScript, and sometimes when Exchange optimizes a file and detects duplication. Box Of

Tricks is unable to discover the resolution of these so it leaves them alone. See [What is a FormXObject?](#)

How do I shrink just one image?

To shrink just one image go to the Info screen, and click on the image, then click on **Shrink Image**. You will have the same choice of settings as on the regular shrink screen. See [What does the Shrink Image button do?](#)

Is JPEG compression in Distiller 4.0 faulty?

*The following information is based only on our independent evaluation, and refers to features in Adobe's products which are subject to change without notice.*

There were several changes to JPEG compression in Distiller 4.0. Some were definitely intended, and we suspect others were a mistake, that might be corrected in a later release. This describes the situation with the initial release of Distiller 4.0, on both Macintosh and Windows.

Firstly, the names of the five built in compression types were changed. The important thing is that the names in Distiller 3.0 described *how much compression* is to be done, while the names in Distiller 4.0 describe the *quality*. So, the names seem to be the exact opposite. This table shows the names used.

Distiller 3.0 name	Distiller 4.0 name	File size
high	minimum	Smallest
medium-high	low	
medium	medium	

<i>Distiller 3.0 name</i>	<i>Distiller 4.0 name</i>	<i>File size</i>
medium-low	high	
low	maximum	Largest

The change in names is easy to understand, but the other changes are surprising.

Studies by Quite have found that Distiller 4.0 does not use five different levels of JPEG compression. We have found that for colour images, there are only three different levels, and for greyscale images, only two different levels.

For colour, *minimum* and *low* have been found to give identical results. Also, *medium* and *high* give identical results. For greyscale images, *medium*, *high*, and *maximum* have all been found to give identical results.

Each image is different, but the following results may be of interest. They are all based on distilling the same colour photograph of about 1 megabyte.

<i>Distiller 3.0 name</i>	<i>Distiller 3.0 compression</i>	<i>Distiller 4.0 name</i>	<i>Distiller 4.0 compression</i>
low	33%	maximum	56%
medium-low	22%	high	25%
medium	6%	medium	25%
medium-high	5%	low	4%
high	4%	minimum	4%

Because of this, we have decided to keep Distiller 3.0's names and compression rules in Quite A Box Of Tricks, even if used with Acrobat 4.0. You may be able to get major savings using Quite A Box Of Tricks on files produced with Distiller 4.0.

Remember: this situation may not last, and if your distiller is later than 4.0, the above may not apply.

## Colour conversion

- Why would I convert PDF colours?
- How do I control the conversion to CMYK?
- What is an ICC profile?
- Why use ICC profiles?
- How do I use an ICC profile with Quite A Box Of Tricks?
- Where do I get an ICC profile?
- What about input profiles?
- How do Distiller 3.0 options affect ICC processing?
- Is Quite A Box Of Tricks a PDF Colour Management Solution?
- What about UCR, GCR and black generation?
- Why is part of my file still in colour after converting to greyscale?
- What is spot colour and how is it converted?
- Are ICC profiles broken in Distiller 4.0?
- What do the warning messages mean?
- Why can I undo All Text To Black but not the other conversions?
- Text didn't convert to black - why not?

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### Why would I convert PDF colours?

Here are some reasons why you might want to use the colour conversion functions in Quite A Box Of Tricks.

- Many systems of printing colour on a press require that colours be in CMYK, that is a mixture of the colours Cyan, Magenta, Yellow, and black. These are the same as the inks used in printing, so the colours in the file are used directly to select the amount of ink used. Unfortunately, many files use RGB colours, that is a mixture of Red, Green and Blue, as used for the colours of light in a monitor.

Some systems will automatically convert RGB to CMYK, so on these systems conversion to CMYK is not a vital issue. But others



simply will not work, that is, they will not print in the correct colours or print at all, if RGB is used.

Box Of Tricks can do this conversion for you, if the printing system does not do it automatically.

- If a file contains spot colour, Box Of Tricks can optionally convert these to CMYK. This avoids problems where unwanted printing plates are produced.
- Quite A Box Of Tricks will also convert to greyscale. If a file is only to be printed in black and white, this may reduce the size, and may make it easier to predict the result.
- Text can be converted to black (not greyscale). This may be useful if a document was prepared with coloured text for viewing on screen or colour printing, and is now to be printed in black and white. Black text may look better than grey text.

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## How do I control the conversion to CMYK?

When you select CMYK conversion, a **Setup** button is available. With this you can control the conversion process.

- You can select between a fast, fixed conversion to CMYK and one which uses ICC profiles, provided your operating system supports them (MacOS or Windows 98). See [How do I use an ICC profile with Quite A Box Of Tricks?](#) The fixed conversion applies “maximum UCR”, and tends to minimize the amount of ink applied to paper.
- For text and line art you can select whether or not to convert. See [What is “text and line art”?](#)
- For text and line art you can also select that equal amounts of R, G, B colour are converted directly to greyscale, rather than a CMYK mixture. This may produce clearer printing of black text and thin lines, and is usually recommended.

- For images, you can choose whether or not to convert.
- For images, you can select that they must be recompressed only with ZIP. This guarantees that the image is not degraded. By default, images that had been compressed with JPEG will be recompressed with the same JPEG settings. If the ZIP option is on, the converted file size may be many times larger than the original file size.
- You can choose whether or not all spot colours are converted to CMYK. This is off by default, so that spot colours are preserved. See [What is spot colour and how is it converted?](#)

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## What is an ICC profile?

ICC profiles are files which describe how colours are to be converted for particular devices (printers, scanners, or monitors). Each profile describes how to convert colours to or from a “universal” space, which is device independent.

This means that you can take a colour from one device (such as a scanner), and convert it to universal space, then convert to the colour for a different device (such as a printer). This should keep the colours as accurate as possible, within the limitations of the devices (for instance, few printers can make a bright green or bright blue).

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## Why use ICC profiles?

Traditionally colours are expressed as RGB (red, green and blue) for monitors and CMYK (cyan, magenta, yellow, and black) for printers, including colour presses. This works well, but the results of printing the “same” colour can vary widely from device to device. Monitors may use different settings, so red, green and blue look different. And, printers use different inks, printing technologies and paper which can produce different looks. “Generic” RGB and CMYK has been

considered “good enough” for many people, but others have struggled to produce the same colour on screen, on paper proofs, and on the final printing press, to satisfy demanding clients.

A number of different ways to manage this have grown up, called “colour management”. For instance, Adobe Photoshop has allowed the user to pick from a list of inks and papers, and adjust their properties. This works but has a number of disadvantages. It can only be used for Photoshop images; other applications will do colour management in a different way (which has to be learned separately) or not at all; and setting it up correctly requires considerable expertise.

ICC profiles can replace all of the manual settings. If used correctly, they are easier to work with (though creating ICC profiles remains a highly skilled task). Above all they are a standard (described in full on <http://www.color.org>), and the idea is that they should be usable with a wide variety of applications and systems. Apple and Microsoft have added ICC support to their operating systems, so there should be widespread use of ICC profiles before too long.

Acrobat 4.0 introduced *embedded* ICC profiles. These are profiles right inside a PDF file, that describe how colours are to be interpreted.

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## How do I use an ICC profile with Quite A Box Of Tricks?

When converting to CMYK, click on the **Setup** button first. This allows you to choose between a built-in (fixed) conversion, and ICC profile conversions. This is available only if the operating system supports ICC profiles. MacOS 7.5 and upwards support Apple's ColorSync. Windows 98 supports Microsoft's ICM 2.0. Windows 95 and Windows NT 4.0 do not have any built-in colour management, so only the fixed conversion is possible. Windows NT 5.0 (or NT 2000) is expected to include ICM 2.0.

After selecting to use colour management, you must click **CMYK profile**. You then get a list of profiles to choose from.

- On the Macintosh, the list contains all suitable profiles installed in the **ColorSync™ Profiles** folder within your system folder. Before ColorSync 2.5 this is a folder within Preferences. From ColorSync 2.5 the folder is at the top level of the system folder, and can contain subdirectories (but only one level deep).
- On Windows 98, you will see a file open dialog. This can be used to open any profile. ICC profiles are saved as type **\*.icm**. The opening folder will be the system's default profile folder, such as **c:\windows\system\color**. All profiles are shown, including unsuitable ones (those for monitors or scanners). To get more information on a profile, right click and select **Properties**.

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## Where do I get an ICC profile?

As ICC profiles catch on, this is a question many people will be asking. There are several answers.

1. If you have installed high end applications on the system, you may already have a good collection of relevant profiles.
2. For printers, especially high-end proofers we expect the printer manufacturer to supply them. Notice that profiles are only applicable to PostScript printing when we deal with Quite A Box Of Tricks. This is because non-PostScript printing in Windows or Macintosh will always be done by converting back to RGB, making a conversion to CMYK a waste of time!
3. For offset and other industrial printing, profiles are available for generic specifications of device, such as newsprint printing.
4. It is possible to create ICC profiles for particular presses and types of ink and paper using equipment that analyses printed samples. This is an expensive and skilled task.

5. Adobe Photoshop 5.0 allows you to set a combination of ink and paper settings, with other advanced settings like UCR/GCR, and save them as an ICC profile.
6. If you are sending work for inclusion in another publication, for instance a colour advertisement, ask for the ICC profile that applies to output. Of course, ICC profiles are still fairly new, and they may not know what you are talking about, but it is worth a try.

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## What about input profiles?

Those who understand ICC thoroughly will be asking what Quite A Box Of Tricks does for input profiles. In general, to convert from RGB to CMYK you would need a profile for the RGB device. Quite A Box Of Tricks does not support this. Here's what it does.

In Acrobat 3.0, there are three ways to specify colour in a PDF file, that will need conversion to CMYK.

- Lab (or  $L^*a^*b^*$ ) colour is a device independent colour. It has already been converted from RGB. This is still comparatively rare in a PDF file.
- Calibrated RGB is a form of RGB which includes all the information necessary to make a profile. Distiller can generate calibrated RGB colours under a number of circumstances, including when an RGB Photoshop EPS is placed on a page and distilled. Photoshop EPS files contain calibrated RGB even if using Photoshop 4.0 or if ICC profiles are not being embedded by Photoshop 5.0.
- Device RGB is “generic” RGB, with no profile or other information to define how the colours are to be interpreted.

Remember that you can use the Info function in Quite A Box Of Tricks to find out whether an image is in Lab, Calibrated RGB, (Device) RGB or already in CMYK.

In the first two cases, no profile is required. The PDF file contains all the information necessary for an accurate conversion. In the final case, Quite A Box Of Tricks applies a fixed profile. The profile used is based on an emerging standard for “generic RGB” intended for use with office applications, web browsers and other applications where the users typically have no understanding of colour management. It is called sRGB and is described on <http://www.sRGB.com>. It has a gamma value of 2.2 (for those interested in such things).

In Acrobat 4.0 a fourth way to specify colours for conversion has been added. This uses ICC profiles *inside* the PDF file. Files can contain ICC profiles with one channel (greyscale), 3 channels (typically RGB) or 4 channels (CMYK). Quite A Box Of Tricks 1.2 is only interested in 3 channel ICC profiles. It will process these in one of two ways:

1. If you are using fast conversion, the ICC profiles are ignored and the information is converted as RGB. This is the only option in Windows 95 and NT 4.0.
2. If you are converting using a CMYK ICC profile, then the two profiles are combined to do an accurate colour conversion. If the profile is unusable, a warning message is issued, and an sRGB profile is used instead. See [Are ICC profiles broken in Distiller 4.0?](#)

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## How do Distiller 3.0 options affect ICC processing?

Several Distiller options are important to how colour is managed.

- The **Convert CMYK images to RGB** option will produce smaller files, but this conversion is not based on any specific profile in Distiller 3.0. This means that colour information is lost. For best results this option should be kept on, to preserve any CMYK colour that is in the file.
- The **Color Conversion** options determine how calibrated colour is handled.

- **Unchanged** tells Distiller to keep calibrated colour and Lab colour where it finds it, but to leave other colours alone. This is probably a useful default. Quite A Box of tricks will apply sRGB to the uncalibrated colours only.
- **Device independent** converts all RGB colour to calibrated RGB. This is useful, but you cannot control the profile used for uncalibrated colour, which is an RGB colour space (gamma 1.8) supplied by Adobe. If this is done, colour which is not originally calibrated will be calibrated in the PDF, and Adobe's profile will be used for conversion.
- **Device dependent** removes all calibration information, converting all RGB to device RGB. This is not recommended unless you need to remove a completely spurious calibration. Quite A Box Of Tricks will then apply sRGB profiles.

Distiller 4.0 also has options affecting colour processing. See [Are ICC profiles broken in Distiller 4.0?](#)

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## Is Quite A Box Of Tricks a PDF Colour Management Solution?

We do not claim that the ICC profile handling has made Quite A Box Of Tricks into a full solution for colour management. This is partly because that was not the intention, and partly because of the limitations of Acrobat 3.0 and 4.0. For instance, after conversion to CMYK, we cannot control how Acrobat displays the colours on screen. They may look wrong, even though they should print successfully.

Also, a full colour management solution would take into consideration monitor profiles, and allow conversion from CMYK to CMYK, by converting between printer profiles. Acrobat 3.0 does not allow printer profiles to be added to PDF files, so there is no way to automatically reconvert to a new profile.

Acrobat 4.0 does, but the support in Distiller currently appears to be flawed. See [Are ICC profiles broken in Distiller 4.0?](#) There also does not seem to be any way to select a monitor profile in the 4.0 versions of the Acrobat viewer.

With Quite A Box Of Tricks, you should keep your original RGB file. You should convert to CMYK once for each output device (e.g. proofer and press) for best results.

In fact, we would recommend that, for now, you should work with CMYK directly if you have a choice. Quite A Box Of Tricks is intended to be a valuable tool when there is no other choice, e.g. when processing office documents for offset printing.

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## What about UCR, GCR and black generation?

UCR, GCR and black generation are all ways of expressing how much black ink is substituted for equal amounts of cyan, magenta and black. They do not apply when using Quite A Box Of Tricks.

Firstly, the conversion that is performed uses either a fixed table (maximum UCR), or uses ICC profiles. ICC profiles control the complete conversion to CMYK, including all UCR, GCR and black generation, so it is not appropriate or possible to take any other settings into account. PDF files may contain UCR and GCR settings, preserved by Distiller, but you can see that Quite A Box Of Tricks will not use them.

Secondly, when outputting separations with the Crackerjack product (see <http://www.lantanarips.com>), you are offered choices of UCR and GCR. These apply only when RGB data is to be printed. So, if you have converted all colours to CMYK already, these settings can have no effect on printing. In fact, if you are printing separations with Crackerjack you do not usually have to convert to CMYK before printing, because the output device will do it for you according to the



UCR/GCR specifications. This does not give the choice of an ICC profile, however.

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## Why is part of my file still in colour after converting to greyscale?

There are three reasons why part of the page may still appear to be in colour after you attempt to convert to greyscale.

1. The coloured area may have been added using the forms tool. Box Of Tricks does not change the colours in form elements, because it may prevent them from working if a form is to be filled in. If form elements have just been used to add text to a page, you can use the Fields function in Box Of Tricks to make them part of the page. After this, text should convert to black.
2. In greyscale set up, the option **All spot plates removed, converted to greyscale** may be switched off. If this is the case any spot colours will be left in colour. Try with the option on (it is on by default).
3. There is a bug in Acrobat 3.0x, which means that certain pages may not seem to change colour, even though the PDF file has been changed. In this case (unless you are using Acrobat 4.0) we will always issue the following warning:

*Important: due to an Acrobat bug, parts of this file may seem unconverted, and there may be spurious warnings. We recommend you save, close and re-open this file.*

It is important to follow these instructions, especially to close the file immediately after saving. If you do not close it, a number of surprising and alarming error messages may start to appear.

It is sensible to use **Save as** with a new name, rather than just **Save**, so that you still have access to the original file. This is

especially important if running in demo mode, as you won't be able to remove the "X" over each page.

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## What is spot colour and how is it converted?

Spot colour is a term used in professional printing to mean a special colour of ink that is used to add colour to a page. This is different from ordinary colour printing, which mixes cyan, magenta, yellow and black (CMYK) to make full colour, also known as process colour.

Spot colour is usually used to add one or two specific colours, as in the case where a page contains only black and red; it is more cost effective to use black and red ink than to set up and mix CMYK. Spot colour can also be used to add colours over the top of CMYK, such as a metallic finish on a book cover.

A PDF file can contain spot colours, and if colour separations are printed all of the colours will result in separate printing plates. This is not always desirable, though. Sometimes, designers make a mistake in page designs or illustrations, and might choose "spot red" when a page is to be printed with CMYK. If nothing is done about this, five printing plates may be produced - cyan, magenta, yellow, black and red.

When you convert to CMYK, you have the option to select **Convert all spot colour plates to process (CMYK)**. This is *off* by default. When it is on, the spot colour is converted to CMYK and will not produce an extra plate. The CMYK value used is the one chosen by the designer, which is the one you will see on screen, or when printing to a desktop colour printer.

You have a similar option **Convert all spot colours to greyscale** when converting to greyscale. This is *on* by default, because people usually want a greyscale page to be completely grey and black. By switching this option on, you can preserve a spot colour, while converting all the normal RGB and process (CMYK) into greyscale.

Acrobat 4.0 supports a new kind of colour specification called **DeviceN**. This allows you to mark on several spot plates at the same time. At present, Quite A Box Of Tricks cannot convert DeviceN colours even if you ask to convert spot colours. If any DeviceN is present in the file, a warning message will be issued.

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## Are ICC profiles broken in Distiller 4.0?

*The following information is based only on our independent evaluation, and refers to features in Adobe's products which are subject to change without notice.*

Acrobat 4.0 supports ICC profiles embedded in PDF files. The viewer may use them for display, and Distiller may add them to PDF files. A number of Distiller job options control this.

Our studies suggest that at least some of the time, Distiller 4.0 adds bad profiles to PDF files. The bad profiles are not usable.

It is important to realise that Acrobat viewers will never tell you that an ICC profile is bad. They are designed to ignore profiles that they do not understand. So, typically, information is displayed as if it is a normal RGB colour. It will look reasonably correct, but will not have accurate colour matching.

When Quite A Box Of Tricks converts to CMYK, and you are using ICC processing, incorrect profiles will produce a warning message. Quite A Box Of Tricks will automatically substitute an sRGB profile.

You may want to avoid Distiller's ICC profile handling until the situation becomes clearer. There are two ways to completely avoid ICC profiles:

- Select **Compatibility: Acrobat 3.0** on the **General** screen in job options; or
- If using **Compatibility: Acrobat 4.0**, then use **Leave Color Unchanged** on the **Color** screen in Job options.

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## What do the warning messages mean?

These are some of the warning messages that may be issued during colour conversion.

*Warning: some parts of this PDF file didn't make sense. Results may be incorrect.*

This message occurs when Box Of Tricks couldn't work out what part of a PDF file meant. That means it was left alone, but something may be wrong with the file. There are no cases where we would expect a valid Acrobat 3.0 file to produce this warning.

Or, you may be using Box Of Tricks with a file created with a newer version of Acrobat than 4.0. Because new versions of Acrobat might handle colour differently, please check our web site <http://www.quite.com/> to be sure you have the latest version of Box Of Tricks.

*Note: this PDF uses Calibrated RGB or Lab (device independent) colour. Calibration has been ignored, but the conversion to CMYK has been completed for these colours.*

This message only occurs when you are *not* using ICC profiles to convert. It means that the file contained device independent colour, and acts as a warning that the original file might have been made with high expectations of colour accuracy.

*Important: due to an Acrobat bug, parts of this file may seem to be unconverted, and there may be spurious warnings. We recommend you save, close, and re-open this file. To avoid this problem, select 'Copy document first'.*

This message occurs when a file contains form xobjects that have been recoloured. See [What is a Form XObject?](#) The problem is fixed in Acrobat 4.0, so the message will disappear if a version later than 3.x is found to be in use.

You will never see this message if you process an entire document and select **Copy document first**.

It is important to realise that the Acrobat bug (in 3.0 and 3.01) has two parts. First, after the conversion, parts of the document may seem to not have been converted. This is most obvious when converting to greyscale. Second, after you save the document Acrobat *still* keeps trying to show the old information, but it no longer exists. This results in a wide range of error messages, which you should ignore and close the document quickly.

*Bad PDF warning: one or more images converted were missing some information. This probably means the PDF file was damaged before conversion, and results should be carefully checked.*

This is new with Quite A Box Of Tricks 1.2. Occasionally, damaged files have been found which can be viewed successfully, but which are not usable after conversion. In some cases they could be viewed but not printed. This new message alerts you to the problem with the original file.

*Warning: this PDF uses DeviceN (multi-spot plate) colours. This release of the software cannot convert the colours, they are left unchanged.*

This is new with Quite A Box Of Tricks 1.2. It only occurs when converting to CMYK and some of the new “DeviceN” colour is found. This is designed to mark on multiple spot plates at the same time. It might, for instance, result from a duotone in Photoshop. The current release will leave these unaltered, which is often what is desired; there is currently no way to convert to CMYK from DeviceN. A future release may start to convert DeviceN when converting spot colours.

*Warning: an embedded ICC profile was found which was not for RGB data. It might be for Lab or XYZ. This plug-in cannot use such profiles. The conversion was made using sRGB, but this may produce incorrect results.*

This is new with Quite A Box Of Tricks 1.2. It only occurs when converting to CMYK with an ICC profile, and when an embedded ICC profile has been found that we cannot handle. ICC profiles can contain many different kinds of colour. Most 3-channel ICC profiles are RGB. There are other kinds, but Quite A Box Of Tricks does not handle them. We also do not expect to find them. If you encounter a PDF file which gives this message, please contact Quite Software.

*Warning: a bad embedded ICC profile was found in the file. It was ignored and treated as sRGB. Note that bad profiles never produce error messages, they are just quietly ignored.*

This is new with Quite A Box Of Tricks 1.2. It only occurs when converting to CMYK with an ICC profile, and when an embedded ICC profile has been found that is damaged. It is important to realise that Acrobat will tolerate bad ICC profiles, and quietly use an alternative, with no messages. This message may be the only notification you see that the profiles are bad.

Our initial studies suggest that Distiller 4.0 frequently embeds damaged ICC profiles, so this message may be common. See [Are ICC profiles broken in Distiller 4.0?](#)

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## Why can I undo All Text To Black but not the other conversions?

When you convert all text to black, no information is actually removed.

Instead, extra instructions are added to set the colour to black whenever text appears. Our extra instructions are marked, so it's possible for us to remove them. Working this way doesn't increase the file size by very much.

When doing the other colour conversions, everything in the file is potentially changed, including large images. If we were to keep the

original images as well as the new ones, then the file would potentially grow enormously in size.

There's another reason why we made it easy to undo this. Unfortunately, sometimes text is no longer readable after converting to black. If the text was on a white or light coloured background, there should be no problem. But, if you had white text on a black background, then this will be invisible after the text is converted to black. After converting text to black you are advised to check the file and undo the conversion if it has made any unwanted change.

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## Text didn't convert to black - why not?

There are two reasons why text may not convert to black.

1. It may not actually be text. For instance, it may be a scan of a page containing text; this will still be an image and not text, unless you use Acrobat Capture.

Alternatively, the text may have been created in an application, such as CorelDRAW, Macromedia FreeHand, or Adobe Illustrator, which allow text to be converted to curves. If text is converted to curves it is no longer recognisable as text.

One way to check if an area really contains text is to use the Info tool and click on the target area.

2. The text may have been added using the forms tool. Box Of Tricks does not change the colours in form elements, because it may prevent them from working if a form is to be filled in. If form elements have just been used to add text to a page, you can use the Fields function in Box Of Tricks to make them part of the page. After this, text should convert to black.

## Form field management

- Why would I want to make form fields part of the document?
- Why would I want to remove form fields?
- What's this about annotations?
- I get errors using the text touch-up tool. Why?

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### Why would I want to make form fields part of the document?

Mostly, form fields are used to add interactive features to a PDF document. Making them into part of the document doesn't make any sense, because afterwards they would not be interactive. Buttons would not press,

Sometimes, though, form fields are used to make changes to a document. It is one of the few ways to add text, for instance. In this case the interactive features are not required, and you may want to make them part of the document for one of the following reasons:

- The document is then harder to alter by accident.
- Provided you select to remove all the non-printable form fields *and* use the **Entire document** setting, this can shrink the PDF file.
- Some users have reported problems where the appearance of form fields changes, or they disappear, when printing. This should not happen if they are made part of the document.
- Version 1.0 of our Quite Imposing and Quite Imposing Plus products will not preserve form fields when a page is being imposed.

Once a form field is made part of the document it is a *form xobject*, which will always display and print along with it, but has no interactive properties. See also [What is a Form XObject?](#)



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## Why would I want to remove form fields?

The main reason to remove form fields is to shrink a file. It can also remove confusion, by removing non-printing fields which mean that what you see on screen is not what prints.

One time when removing fields is helpful is after documents that contain form fields have been merged, extracted and so forth. This can, it seems, leave references to many “dead” fields on deleted pages still occupying space in the file.

To save space it is essential that you select **Remove all form fields** and apply to the entire document. If you remove from a page at a time, the form fields are deleted from the page, but all of the fields are left behind in a central list for the entire document.

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## What's this about annotations?

Annotations are not new to Acrobat 4.0, but Acrobat 4.0 made a lot of changes to them. An annotation is extra information that sits on top of a PDF file, but it not really part of the page. The best known example is *notes* which appear either as a small icon, or as an open box containing text.

Acrobat 4.0 added a lot of new annotation types, such as scribbles, stamps, text highlighting, free text annotations, and boxes. Also, Acrobat 4.0 can now print annotations, so these features are very useful for mark-up.

However, printing can also be an inconvenience. When printing with File > Print, there is an option to switch on or off annotations. However, when exporting PostScript or EPS there seems no way to turn this off (in Acrobat 4.0 - this may change in future releases). This is why Quite A Box Of Tricks allows the option to remove annotations.

Annotations can also be made a part of the document. In this way, mark-up can be made permanent and un-editable, perhaps in preparation for passing a document for review in a second group.

Strictly speaking, form fields are a kind of annotation too. But it is convenient to treat them as separate.

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## I get errors using the text touch-up tool. Why?

After a form field or an annotation has been made a part of a document, you may wish to edit it using the text touch-up tool. Unfortunately, there appears to be a problem with Acrobat 4.0. Although converted form fields are valid, any attempt to edit the text will cause a range of surprising errors, and can seriously damage the document.

We are researching this problem, but at the moment we do not know of any work-around for the problem.

If you make a change and get error messages, you should close the PDF file **without saving** to avoid potentially losing all of the page contents.

## Transformation

- Why use the transformations?
- Why would I thicken lines in a file?
- Why isn't the line thickness in points?
- Is there any time a line doesn't thicken?
- What happens to links when I transform files?

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### Why use the transformations?

There are a number of different transformations, and there is also the ability to thicken lines, which happens to be on the same screen.

- Mirroring a page may be used for a special effect; or before producing output on a transparent sheet; or to create transfers for fabric. By mirroring an image before printing on a transparent sheet, you can control which side it is viewed from. Placing an image on the back of the sheet can help to protect it from scratching.
- A scaled image may be used before printing, or to prepare a document with consistent sized pages. You may scale down to fit a sheet (though Acrobat's own **Shrink to fit** option will do this when printing) or scale up to fill a sheet.
- Rotated images may be used for special effects. You should note that each time you rotate a page, it is likely to get larger (since the page has to be square). Also note that, if you rotate a cropped page you can no longer un-crop it to get back the hidden areas.

You should note that even if you rotate by 90, 180 or 270 degrees this is different from Acrobat Exchange's rotate function. Box Of Tricks actually rotates the contents of the page. Exchange just remembers "this page is to be shown rotated". This usually makes no difference, but some software may behave differently, possibly including the forms tool.

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## Why would I thicken lines in a file?

It is very common for the software that creates pages to ask for very thin lines. They might ask for 0.001 inch, or even for a width of 0, which means “the thinnest line possible”. These usually look fine on a desktop printer.

Unfortunately if pages like this are to be printed professionally, they may be output on devices with a very high resolution. In this case very thin lines may appear on the page (or sheet of film, or printing plate) but are so thin they need a microscope to see them, and may disappear completely in the final product.

You can easily thicken all the lines in a file, by specifying a minimum width. Any line which is thinner than the minimum will be increased to the minimum you choose.

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## Why isn't the line thickness in points?

The initial value is 0.1 points, a commonly used value, equivalent to 0.0014 inches or 0.035 mm. The units used on screen are the same as the default Acrobat units (from general preferences).

If you know what value you want in points, but the current units are inches or millimetres, you can use a special trick. When you type a value you can follow it with / and a number to divide. For instance **1/100**. (Note: you can't do general arithmetic, just this single division).

If the current units are inches and you want to enter a value in points, divide by 72. Or rather, let Box Of Tricks do it for you.

To get a value of 0.2 points from inches, you could type **0.2/72**.

If the current units are mm, divide by the less obvious number of 2.83.

To get a value of 0.2 points from mm, you could type **0.2/2.83** instead.

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## Is there any time a line doesn't thicken?

Lines will usually thicken. However, there are a number of reasons why you may still end up with a very thin line.

1. The line may not be drawn as a line (or outline), but as a very thin rectangle, which is then filled in. This will not be thickened.
2. Lines in form fields will not be thickened. This should not be a major problem, as the forms tool is unlikely to create very thin lines. See [Form field management](#).
3. Lines in *form xobjects* will not be thickened. These are a way for a PDF file to use the same collection of objects on a number of different pages. Box Of Tricks does not touch lines in form xobjects because they may be placed at different scales on different pages; so it is not possible in the general case to work out what is the "right" thickness. See [What is a Form XObject?](#)

One other case should be noted. It is possible to have objects in a file which are scaled differently in the x and y directions. For instance, if an EPS file is placed in Adobe PageMaker, you can shrink it 50% horizontally, to make it a tall, thin, shape. This has to be done with caution for files containing lines, as the lines are scaled to match. So, horizontal and vertical lines may not have the same thickness.

Box Of Tricks will recognise this case, and uses an average width as its basis for thickening lines.

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## What happens to links when I transform files?

When you transform a page by mirroring, scaling or rotating it, nothing special is done with links. This usually mean the links will end up attached to the wrong part of the page, so many of the transformation functions are not suitable for use with interactive files.

Form fields, too, are not handled specially and may be left in the wrong place. If form fields are being used to add marks to the page, you may wish to use the Field tool to make them part of the document before you transform it. See [Form field management](#).

## PDF Info

- How do I use the info tool?
- What does the font information mean?
- What does the image information mean?
- I'm not getting information on my text/image - why?
- What does the Shrink Image button do?
- What do the Find and Next buttons do?
- What is a Form XObject?

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### How do I use the info tool?

The Info tool will tell you information about your PDF file that can be hard to find in other ways. To start the info tool, you can click on the **Info** button in the Box Of Tricks main window, or use the new “i” icon in the toolbar. When the info tool is active, the cursor changes to an “i” and an arrow.

If you click on *text*, it will tell you the font name and size, and important information about the font: whether it is embedded, and whether an embedded font is subsetting.

If you click on an *image*, it will tell you a lot of information about that image, especially related to its size and colour type.

When text or images are selected that area of the page is highlighted. The highlighting is done by reversing colours, because this is the fastest way to highlight an area, and allow the highlighting to be removed.

After you click on an image you can also use **Shrink Image** to use the Shrink settings and (possibly) make it smaller.

Finally, the **Find** and **Next** buttons can be used to locate images that might need special attention. If you are working with colour separation, you can look for RGB images. If you are concerned with

size, you can look for the largest images in the file - often just one or two images dominate the file size.

To get information on text or images, just click on them. The information shown will immediately update. Sometimes text and images overlap. The rule followed is: if you click on text, you get information on the text. If you click on overlapping images (which aren't covered by text) it will select each of the images in turn.

If an area of the page is a *form xobject* (not the same thing as a form field) it can cause problems with some functions. The info function will tell you when you click on a form xobject, but it can't tell you information about the images or text contained inside one. See [What is a Form XObject?](#)

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## What does the font information mean?

The font info shown when you click on a piece of text has five pieces of information:

1. The font name. This may be the name you expect, but sometimes it is different. If a name has six random letters and "+" before it, as in BGMOAF+Frutiger-Bold, this is done when a font is made into a subset. Each subset has a different name, to keep them from getting mixed up.

Sometimes the font name is meaningless, like "F23", or "MSTT23A07". In this case you can't directly find out the original name.

2. The font size is given, in points.
3. The font type is given. Acrobat supports several different kinds of font, including:
  - **Type1**, a PostScript font (also known as "ATM fonts"). When TrueType fonts are printed through PostScript, they often turn into PostScript fonts too.



- **TrueType**, a TrueType font.
  - **MMType1**, a multiple-master PostScript font - one that can take different shapes.
  - **Type3**, a font actually made by drawing line art and images. The quality of these is often poorer than PostScript or TrueType fonts.
  - **Type0**, **CIDFontType0** and **CIDFontType2**, very large fonts typically found in Far Eastern languages.
4. Whether the font is embedded. If the font is not embedded, *and* it is not installed on your local computer, Acrobat will create a substitute with the right spacing, but which may look different from the original design. Certain fonts are built-in to Acrobat and are never embedded. These will be shown as **Never (built-in)**.
5. Whether the font is subsetted. A subsetted font includes only the characters used. For instance if only the word **QUITE** appeared in a file, only the five letters Q, U, I, T and E would remain in the file. This cuts the size down, but makes it difficult to edit - if you changed the word to QUOTE, the letter O would be missing.

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## What does the image information mean?

Box Of Tricks will report detailed information on an image in a PDF page if you click on it. Perhaps we should start by defining what an image *is* in PDF terms. An image is a collection of pixels (dots) where each can have a different colour. Images are one of the three basic types of object on a PDF page (the others are text and line art).

Usually there is an obvious match between an image in a page and a graphic file such as a TIFF or BMP file used to make up the document. Commonly, an image is a single photograph or screen shot, but it may also be a scan of any kind of original, so it may appear to contain text or lines.

Images are sometimes used for special effects, for instance a colour gradient, where an area changes from one colour to another, may be made using an image. When you run Acrobat Capture, the unrecognised areas of the page may become a collection of many images, mixed with the text.

Sometimes the area highlighted when you click on the page may not be what you expect. One reason is that images can be larger than they seem, and a “clipping path” is used to cut-out a window through which you see the image. In some cases what seems to be one image might be stored as a series of narrow or thin images side by side. And sometimes what appears to be an image might not be an image at all - see [I'm not getting information on my text/image - why?](#)

Assuming you have clicked on an image and the area is highlighted, eight pieces of information are now given.

1. The image size in pixels. This is the true number of pixels (dots) which make up the image.
2. The image size in points (1/72 inch, 0.35 mm). This is the size of the upright rectangle containing the image, so if an image is rotated this is not the same as its own width. Still, this information together with the pixel size can be used to work out the resolution - so Box Of Tricks does this and shows it as item 8.
3. The uncompressed size is the “raw” size of the image. That is, the number of bytes needed to hold the image in memory, if it is not compressed at all. This is based on the size in pixels. For instance a typical RGB image uses three bytes per pixel, so if the image size is 100 x 200 pixels, the size in bytes is  $100 \times 200 \times 3 = 60000$  bytes - about 60K (1K is 1024 bytes).
4. The compressed size is now shown. This is the size actually occupied on disk by this image, in the PDF file. There is no way to say what this value will be in advance, because each image may compress slightly differently.

This value may be shown as **n/a for inline image**. Inline images are very small images that are mixed with the text and line art. They are not usually compressed themselves, but the text and line art as a whole, including the inline images, is usually compressed with ZIP. See [What is "text and line art"?](#)

5. Compression ratio is the value of 4 (compressed size) as a percentage of 3 (uncompressed size). For instance if an image of 60K is compressed to 15K, the compression ratio will be 25%. Typically, more aggressive JPEG compression will reduce this value. This value is not shown for inline images.
6. The compression type is shown. This is the value used by Distiller or PDFWriter to create the PDF file, or by Box Of Tricks when shrinking the image. **ZIP**, **CCITT group 4** and **JPEG** have been described in [What do the compression types mean?](#)

Where JPEG is used, Box Of Tricks attempts to work out the compression originally used (e.g. **low**, **high**, **extra**). Photoshop's JPEG compression levels (a number from 0 to 10) are also recognised. There are many other ways a JPEG might be compressed and these will be shown as **JPEG Unknown**.

Other types you may see include **Run length** and **CCITT group 3**, which are compressions for monochrome images which are usually less effective than **CCITT group 4**. **LZW** is used by Acrobat 2.1 and by Acrobat 3.0 in 2.1 compatibility mode. It is similar to **ZIP** but usually slightly less effective.

If you see **ASCII** as well, the PDF file was created with the ASCII option, and the image occupies around 20% more space than necessary.

You can convert an image to non-ASCII **ZIP** or **CCITT group 4** using the **Lossless** setting in the shrink function - see [What compression settings should I use?](#)

7. The image type is shown. These settings reflect the way the image is stored, and often the number of colours. Settings include the common **RGB**, **CMYK**, **Greyscale** and **Black and white** (i.e. monochrome). **Calibrated RGB** and **Lab** are device independent colour, and are mentioned in [What about input profiles?](#) and [How do Distiller 3.0 options affect ICC processing?](#)

**CalGray** is very similar to greyscale, but is a “device independent greyscale”.

ICC-Based colour is also device-independent colour, using an ICC profile. It can have 1, 3, or 4 components. **ICCBased x 3** is typically a kind of RGB (though it could also be other kinds of colour). **ICCBased x 4** is typically CMYK colour with an output profile. **ICCBased x 1** is a kind of calibrated greyscale. See [What is an ICC profile?](#)

**Mask (1-bit)** images are black and white images, but they are special because the white part is transparent. Mask images may also be any colour, not just black.

**Indexed** images are made of a specific list of colours, often 256 colours. This is very similar to the way GIF files are stored. Box Of Tricks also shows what type of colours are in the list. Most often you'll see **Indexed RGB** but after colour conversion you might also see **Indexed CMYK**.

Images made using spot colours are rare but if they are found, Box Of Tricks will report them with the plate name e.g. **Spot Red**.

DeviceN colours are also rare in images. These write to multiple spot plates. This will be shown for instance as **DeviceN x 2** if there are two plates involved.

8. The resolution shown is worked out from items 2 and 3 - it is not shown if the image is not upright. It is usually a single figure in dpi (dots per inch), but where the image is not scaled uniformly you will see two numbers e.g. **100 x 110 dpi**. Do not be surprised if

the resolution is slightly different from what you expect e.g. 72 dpi might appear as **71 dpi** or **73 dpi** or even **72 x 71 dpi**. These variations are due to rounding errors at various stages and can be ignored.

When you have used the Shrink function and an image has been changed, but not yet saved (i.e. **Restore** is still available), items 4 (compressed size) and 8 (dpi) show a before and after value for you to compare. For instance **72 dpi (was 150)**.

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## I'm not getting information on my text/image - why?

If you click on what seems to be an image or text and nothing happens, the chances are that it is neither image nor text. It may be a drawing with lines and fills, or even a text drawn as curves. No useful information can be given in this case.

If you click on a form xobject, Quite A Box Of Tricks will tell you that you have done this, but cannot give any information on its contents. See [What is a Form XObject?](#)

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## What does the Shrink Image button do?

The **Shrink Image** button can be used after you click on an image and information is shown. It can also be used after **Find** or **Next** has highlighted an image.

Apart from the fact that it works on only a single image, rather than the entire document or the an entire page, the choices are identical to those described in the section on [Shrinking](#).

Note that after you use **Shrink Image**, you can switch to the Shrink screen and use the **Restore** button, to put the image back as it was, provided you have not saved or otherwise modified the file. Savings made by shrinking single images are also shown on the Shrink screen.

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## What do the Find and Next buttons do?

The **Find** and **Next** buttons help you identify images in a file that might be of special interest. When you click **Find** you can choose one of these options:

- Search for the largest image in the document. This is the image which will actually use the most disk space, so the compressed size is the one of interest. Sometimes if a document is unexpectedly large you can identify just one or two images that are causing the problem. You can then use the Shrink Image button to do special processing on such images.
- Search for the first RGB image. In fact, the search is for any image that would be changed if converted to CMYK, so this also includes Lab colour images.

The image matching your requirements is highlighted and information about it is displayed.

The **Next** button continues the most recent search. So it will find the next largest image, or the next RGB image.

If an image is located in a *form xobject*, this is reported but the image cannot be highlighted.

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## What is a Form XObject?

PDF is a complicated file format, but the details of it are usually hidden. However, sometimes when using Box Of Tricks it's useful to know a little more about how PDF works, and in particular what a form xobject is.

First, they aren't anything to do with fill-in forms, or anything made with the forms tool. They just share a similar name, but they have been part of PDF for much longer than fill-in forms.

Each page in a PDF file is usually independent, but that can mean there is a lot of duplication. It is possible for a PDF generator to collect a set of drawing instructions, text and images together, and make them into a *form xobject*. This can be used over and over again in the file, or several times on the same page; it can be used at different sizes too.

Form xobjects are not often seen, but they can arise:

- When Acrobat Exchange is used to optimize a file, Exchange attempts to detect if pages have the same background. If they do, the background may be collected up as a form xobject and used over and over.
- When the **preserve OPI information** is checked in Distiller 3.0, a form xobject may be generated for each image that has OPI information. When working with TIFF files and high end DTP applications this can happen unexpectedly. The **preserve OPI information** is best kept off unless you are working with OPI, a special tool for managing high resolution images.
- When you use [Form field management](#) in Box Of Tricks, form fields (the fill-in kind) may be turned into form xobjects.

When you do have form xobjects in a document, Box Of Tricks may not always work as expected:

- The Shrink function will not shrink images that lie inside form xobjects, because they potentially appear at different sizes.
- The Transform function will not thicken lines inside form xobjects. Other transformations should work as expected.
- The info tool cannot give information on text or images inside a form xobject, though it will highlight the area where they appear and reports that a form xobject has been found.

However, form xobjects do not interfere with any colour conversion, except that you may see the unexpected effect that, if you recolour a

single page, all pages containing the form xobject will be recoloured. Unfortunately, there is a bug in Exchange 3.0 and 3.01, which means that, when a form xobject is recoloured, Exchange may not notice, and may continue to show the original object. In this case, a warning message is issued, advising you to save, close, and reopen the document. After saving, Exchange may start issuing error messages; close the document. When re-opened the document should be displayed correctly. This does not happen with Acrobat 4.0.

Acrobat 4.0 does have a new problem with form XObjects. If you attempt to edit text in a form XObject, using the touch up tool, it can damage the PDF file. For more details see [I get errors using the text touch-up tool. Why?](#) Acrobat 3.0 would simply refuse to edit such text, so this is a new problem.



## Working with callas pdfBatchProcess Pro

- What is pdfBatchProcess Pro?
- How do I use pdfBatchProcess Pro with Quite A Box Of Tricks?

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### What is pdfBatchProcess Pro?

pdfBatchProcess Pro is a plug-in for Adobe Acrobat Exchange created by callas software. At the time of writing, it is available only as a part of the pdfToolbox product.

It can be used to automate certain tasks in Acrobat Exchange

Please visit <http://www.callas.de/> for more details.

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### How do I use pdfBatchProcess Pro with Quite A Box Of Tricks?

These instructions are subject to change without notice. For support questions related to the general use of pdfBatchProcess Pro please contact callas software directly.

You can automate almost all of the functions in Quite A Box Of Tricks except those related to INFO. All the functions apply to the whole of a document, and do not create a copy.

#### *1. Start the plug-in*

Once pdfBatchProcess Pro is installed, you will find it in the **Plug-ins** menu. To use this, you must first close all open documents.

#### *2. Create a new job.*

Click the **New** button to create a new job, or task. This task must be given a name.

For each automation action you must define four folders. They should each be new folders with no other purpose.

- **In** is a folder into which you will place files that you want to process. Files will be removed from here as soon as they are processed.
- **Result** is used for files created as a side-effect of the automation. Box Of Tricks does not create any files, but this folder must be defined.
- **Error** is a folder into which files that cannot be processed will be moved. Errors might include a non-PDF file, a damaged file, or a protected file.
- **Processed** is a folder where processed files will be placed. Box Of Tricks will change the input file in the way you choose, and the result will be saved to the processed folder.

### 3. Add an action

Each job can have one or more actions; it is no use until you define an action. Click the **New** button to add an action. You can add more than one action, even from different plug-ins, and they will be processed in order. For each action choose the following.

- **Plug-in** is the name of a plug-in. Only plug-ins specially written for pdfBatchProcess Pro can be automated. You can choose **Quite A Box Of Tricks** from the list of plug-ins.
- **Command** is one of the actions in the plug-in. With Box Of Tricks there are a number of actions to choose from. See the table [Quite A Box Of Tricks Commands for pdfBatchProcess Pro](#) for details.
- **Parameter** appears only for certain actions. Where an action supports parameters, you must pick exactly one. On windows you must pick a parameter unless the option is greyed out, otherwise you will get an error at the time the action is run. See the table [Quite A Box Of Tricks Commands for pdfBatchProcess Pro](#) for details.

### 4. Start processing

Save action and job by clicking **OK**. Then click the **Start** button. PDFBatchProcess Pro will immediately start processing the files in the In folder.

On success files will be written to the Processed folder.

#### *5. If required, check the log*

If you find anything in the Error folder you will want to check the log. PDFBatchProcess Pro starts a new log each day, with the current date. These files are never automatically deleted.

The log will show every file processed, and includes any information messages written by the plug-in. If the plug-in fails, and a file is moved to error, you should be able to find out why this happened by reading the log file.

Log files are simple text files, not PDF files.

**Table 1: Quite A Box Of Tricks Commands for pdfBatchProcess Pro**

Command	Comments
<b>All text to black</b>	No parameter.
<b>Convert to CMYK</b>	Parameter is <b>Use current settings</b> . Uses the settings most recently made using <b>Setup</b> . Currently no way to save multiple setups.
<b>Convert to greyscale</b>	Parameter is <b>Use current settings</b> . Uses the settings most recently made using <b>Setup</b> . Currently no way to save multiple setups.
<b>Flip (mirror) PDF pages</b>	Parameter is either <b>Horizontal</b> or <b>Vertical</b> .

**Table 1: Quite A Box Of Tricks Commands for pdfBatchProcess Pro**

Command	Comments
<b>Form fields and annotations</b>	Twelve parameters. Each possible combination of <b>Form fields</b> , <b>Annotations</b> or <b>Both</b> : combined with <b>remove all</b> , <b>remove printable</b> , <b>fix printable/remove</b> or <b>fix printable/ignore</b> .
<b>Free rotate PDF pages</b>	Due to a limitation of pdfBatchProcess Pro you cannot type an angle, only choose from the parameter list. This includes the angle most recently used.
<b>Optimize PDF</b>	No parameter. This may be used as the last item in a list of actions, especially if preparing for the web.
<b>Scale PDF pages</b>	Due to a limitation of pdfBatchProcess Pro you cannot type a scale, only choose from the parameter list. This includes the scale most recently used and some convenient predefined values (e.g. 200%, and scaling between popular paper sizes).
<b>Shrink PDF</b>	Parameter is a the name of predefined or custom setting. You can give your own settings a name. If you change the settings, the actions use the current definition of the name.

Table 1: Quite A Box Of Tricks Commands for pdfBatchProcess Pro

Command	Comments
Thicken hair lines	Due to a limitation of pdfBatchProcess Pro you cannot type a line thickness, only choose from the parameter list. This includes the thickness most recently used and also the default value (0.1 points).