Uploading Files and Documents to the Literature Finder

Instructions

We intentionally made these instructions very detailed, as we found that unambiguous guidelines help administrators avoid the need for extra work and explanations, and they help members by avoiding difficulties in the uploading process. Please don't consider this as being overly picky, but rather as an offer for help, in order to maintain a high standard of quality of documents in the Radiomuseum.

For the LitFinder Administrators:
Franz Harder and Eike Grund

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preparation of the English Version
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1. Before each uploading ...

please make sure that the target object has already been created. This would be either an issue of a periodical, or an edition of a book. If this is not the case, or if the objects that are already present are not uniquely determined, please contact one of the "Literature Administrators" (Community >Organisation >Literature-Admin). To enter a title, the Admin requires some data, some of which you will find in your copy of the publication in question. For further details, please see the **help symbol – i.**

a) Books:
Your book details should be identical with those on the title page (which is typically page iii). The date of the first edition is important in creating a book entry. If yours is not a first edition, you may be able to find the corresponding date in the preface or elsewhere in the front matter.
However, the date shown along with the name(s) of the author(s) at the end of the preface is often not the publication date, especially if the preface was written and dated towards the end of a year. If the target object entry has already been created, please compare the details shown with those in your own copy.

b) Periodicals (Journals)
First of all, the basic data of a periodical need to be created; this is comparable with creating a book entry (title, publisher, etc.). The relevant data can be found on the title page and in the imprint, which is usually in the front matter of a periodical. Not all periodicals have imprints; in that case one has to look for the key data. Upon first creating a periodical entry, its frequency of publication should at that time be entered as well (e.g., weekly, monthly, first, second or third month each quarter, annual, or variable frequency).
As a next step, an Administrator creates entries for the individual issues of a volume. For this, the following data are required: Volume, year, month(s), and possibly day of publication (if it is provided).
Furthermore, one has to keep in mind that even within a particular year of volume, single and double issues may variably be published.

2. What can be uploaded?

...* Uploads (books) >   * Uploads (journals) >
........o upload book images   ....o upload issue images
........o upload book attachment(s)   ....o upload issue attachment(s)
........o to enter text per page   ....o to enter text per page
........o forum info or question–sticky to the book ....o forum info or question – sticky to the periodical

Both for books and for journals there are various "uploads" to choose from. You will find explanations by clicking on the **Help – i symbol.**
Please note as well the Help – i symbol attached to individual features, to familiarize yourself with hints and guidelines.

Here are some explanations in addition to the "Help" texts:

a) Images
Book or journal: **> front cover only <**
In the case of journals this is the outer cover page, which mostly contains a cover image, and always shows the journal title with some further data (e.g., Volume and Issue). Since the front matter of journals (in contrast to books) does not follow fixed standards, one often has to look for further data inside a journal issue.
Books are bound; they have a cover. We do not distinguish between hardcover and softcover, and just use the term "book cover".
In the inside of a book we will find what is called the
>Title page< that mostly contains additional information, like publisher or year of issue

> Protective cover < (or dust jacket)
There are no rules concerning the design of a dust cover. If present, it mostly differs from one edition to the next, and therefore serves to identify different editions.

> Back cover <
The image of a back cover should only be uploaded if its design is noteworthy, or if it contains important data.

> Index page < or table of contents
There are different possibilities, depending on size. A table of content of no more than about 4 pages in size will preferably be uploaded as single PNG files, as described below in Section 4(d).
For longer tables of content one can combine the individual image files to a single PDF and upload it as an attachment. It should be made searchable with the OCR function, and should be protected against changes with the appropriate security setting.
The following items can be treated as image or as text, depending on their contents:
> Part of a page < (page segment)
> One entire page < (not front/back/protective cover)
> A picture only as part of a page <

b) Attachment(s) (always as pdf)
To enable searchability, a conversion to OCR capability is desirable. Attachments are also suitable for multi-page tables of content or indexes (see above).

c) To enter text per page
This is also suitable for OCR enabled tables of content. The editor, which is also used in the Forum, cannot guarantee formatting of page numbers, but it provides the possibility to link the lines in question with already saved segments.

d) Forum info or question – sticky to the book / journal

As is the case with models, a text contribution concerning literature shall not be initiated from the Forum, but from the book or journal in question. In this way, an automatic link will be created. For drafting and editing your article, the usual WYSIWYG editor will automatically open.

3. The quality of uploaded images

As is usual in museums, we also attempt to present our "artefacts" in an attractive fashion. We cover any punch holes that may be present in journals, reconstruct corners or edges, equalize discolorations and, in particular, we remove tape remnants and stains. With some practice, this can be done with most images, using "**paint",** in a matter of a few minutes. Image processing software offer further possibilities for restoring damaged images.
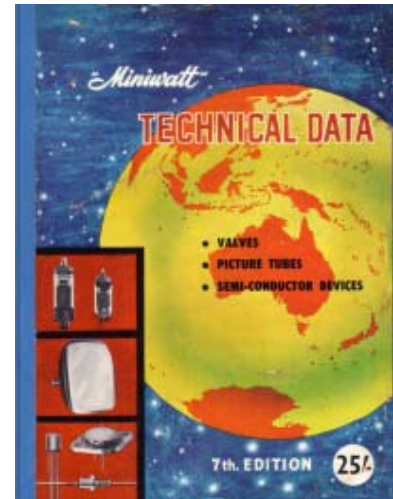
4. Examples for editing images with Irfan View

There is no standard way to edit images of colored title pages or book covers. The editing possibilities strongly depend on the color complexity and the condition of the images. In what follows we use three different images as examples to explain how they can be edited. In each case, the best solution should be found by trial and error. The preferred image processing software is **IrfanView.**

a) Few colors: The book cover shown on the right has three colors. Mostly the colors will be faded through age or wear and tear, or display wave-like patterns.
To begin with, the scan with 200 dpi has a file size of 11 MB in TIF format.
If necessary, the image will be rotated (>Image >Rotate) right or left and precisely adjusted (>Image >Custom/ Fine rotation).
Using the function >Edit >Crop we next cut the margins. Our image now has a size of 400 KB. The reason for this reduction is the fact that the image was cut from a larger area and is now smaller than the original 8½ x 11 or A4.
Now we check the image size (>Image >Resize). Since the current width is already at less than 1400 Pixels, we do not require a reduction which otherwise should be done to
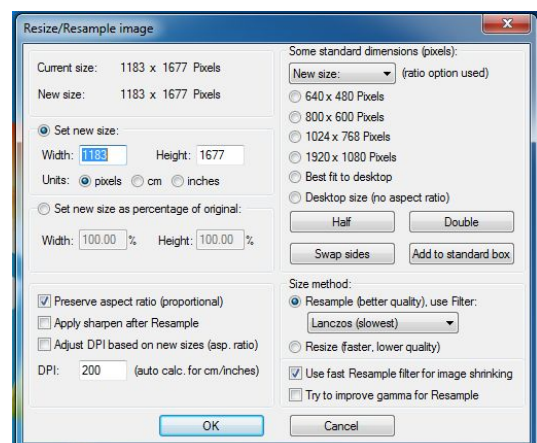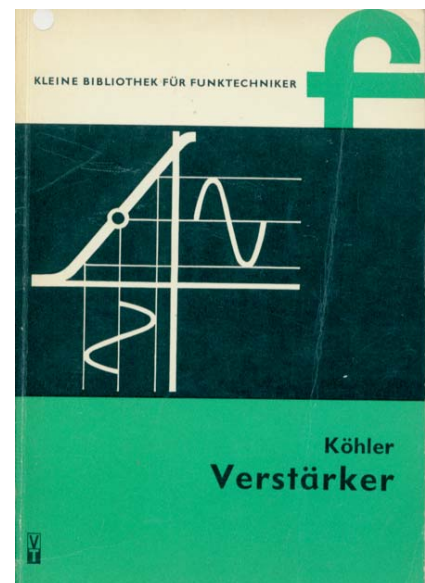
1400 px. We also check the height: If it exceeds 2100 px, we reduce it to the value of 2100. We should not forget to tick the box 'Preserve aspect ratio (proportional)'. In the case of smaller-format images (less than 8½ x 11 or A4) the limit of 1400, resp. 2100 px will often not be reached; in that case a further reduction is not necessary.

As a next step we check the colors (>Image >Decrease Color Depth) which are shown here as "256". We try to reduce this value to "16", which will further reduce the file size. There is no noticeable loss in quality. If necessary, the color variety can now be edited as follows: (>Image >Palette >Edit Palette). This is only possible if the color depth has previously been edited (reduced).
The image below now shows the 16 colors, or the color variants that arose from age or wear and tear. We could leave it at this and convert it now into a compressed image.
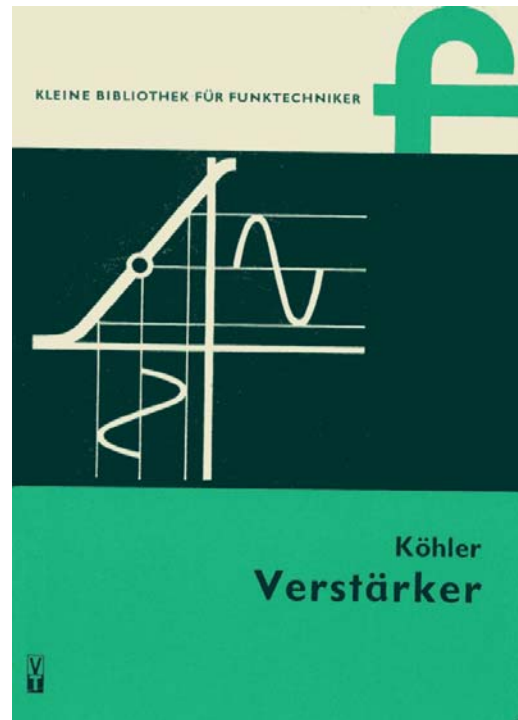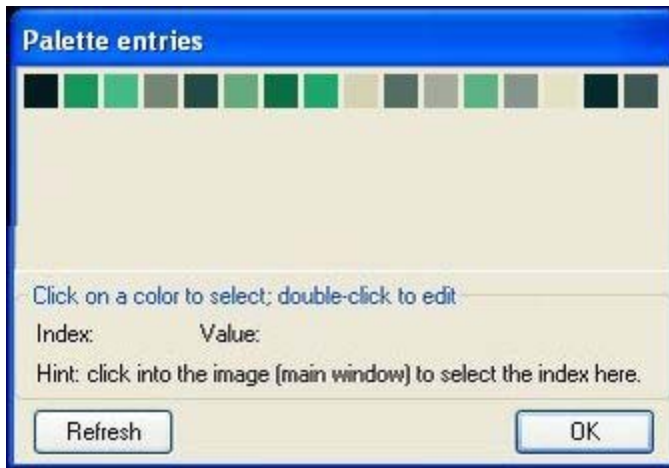
If further improvement is required, we could obtain a different effect by a reduction to 6 colors:
Since the patterns and damaged areas of the image had an increased color depth, in this image we will also achieve a reduction in damaged areas. The image on the right shows the result with 6 colors, and has a file size (TIFF) of about 200KB. We now save the color image as a JPG file. Depending on the level of compression, the file size will be approximately **50 KB.**

b) Cloth covers also have few colors, but here it would be nice if the cloth texture could be preserved. Therefore in the following example it's not possible to use fewer than 16 colors.

The image above shows the upper left corner of a book with a white mark. This spot should be removed with **paint** or with some other software, before reducing the colors, as we did before.
In the editing process we will get file sizes similar to those in Example 4a.

c) Images with complex color structures

The cover image of an issue of "Funkgeschichte" (magazine of the German GFGF) was edited as follows:

Scanned (200 dpi), cropped: 11 MB (TIF)
Width reduced to 1400 pixels, color depth reduced
to 256 colors = 8bit: 2.7 MB (TIF)
Compressed 50%:   329 KB (jpg)
Compressed 40%:   278 KB (jpg)

Remark: Black and white images, scanned as gray-scale images with 8 bit = 256 shades, are edited in the same way as before. However, upon saving in JPG format one should tick the option box "Save as grayscale JPG".

## d) Editing black and white text pages and saving as PNG

Although text pages are represented in b/w (1 bit!), we begin by scanning in 8bit (256 shades of gray), which will facilitate further editing. With normal character sizes, a **200 dpi** resolution is sufficient. Further editing of these pure b/w pages is the same as that of schematics and is described here (E) and here (G). For the sake of completeness we give a brief summary:

The file, scanned in 256 shades of gray, is preferably saved in TIF(F) format; JPG is not suitable. The result, depending on the scanner used, may at first look rather "flat".

To edit the image, it should first be parallel-adjusted (if necessary), and should be cropped down to the desired parts. We then increase contrast (>Image >Color corrections >Contrast or >Brightness), and reduce brightness until the gray tone corresponds to that of the original. To save the values, we then click → Apply to original, → OK. In doing this, the contrast may well require values of 70...85, to achieve a good separation of the printed material from the background. Stains and handwritten notes can be removed at this stage, as already described. One could also copy/paste small rectangles from a suitable area onto affected regions and thus fix stains or imperfections.

Finally we adjust the image size if width and/or height exceed the value of 1400, resp. 2100 px. (Image on next page).

Images uploaded to the Radiomuseum are now automatically reduced to the maximum size; however, if we do this manually, we can see the results immediately and will be able to judge the quality of the images.
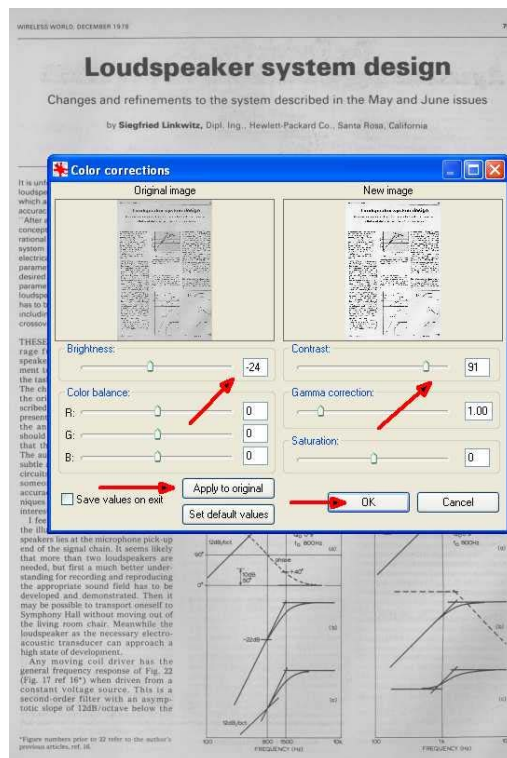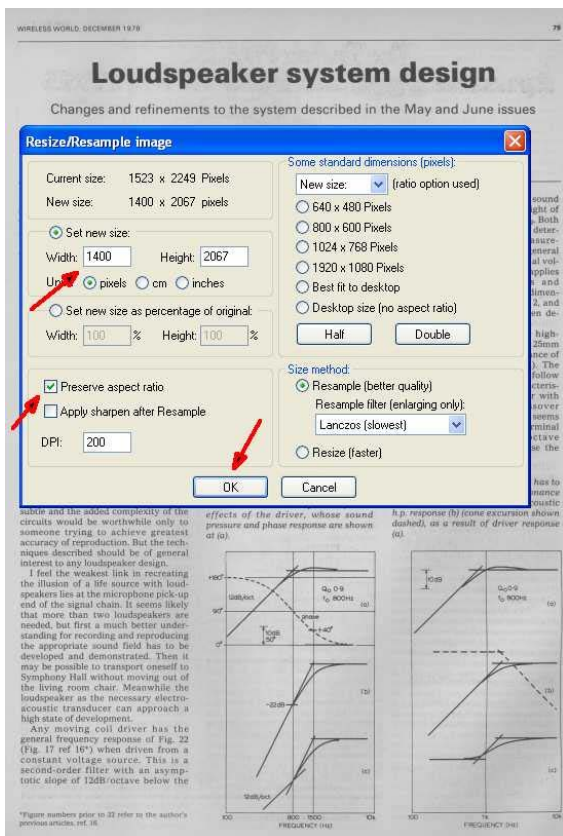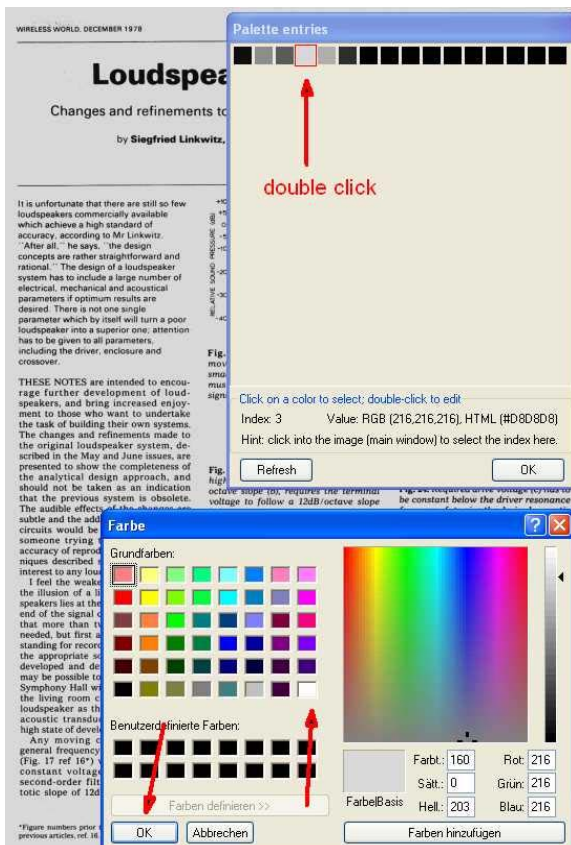
The intermediate result with improved contrast and with reduced size can be seen in the image on the left.

Now we reduce the color depth to 6 shades of gray (not 6 bits!); see the menu box in the image below:
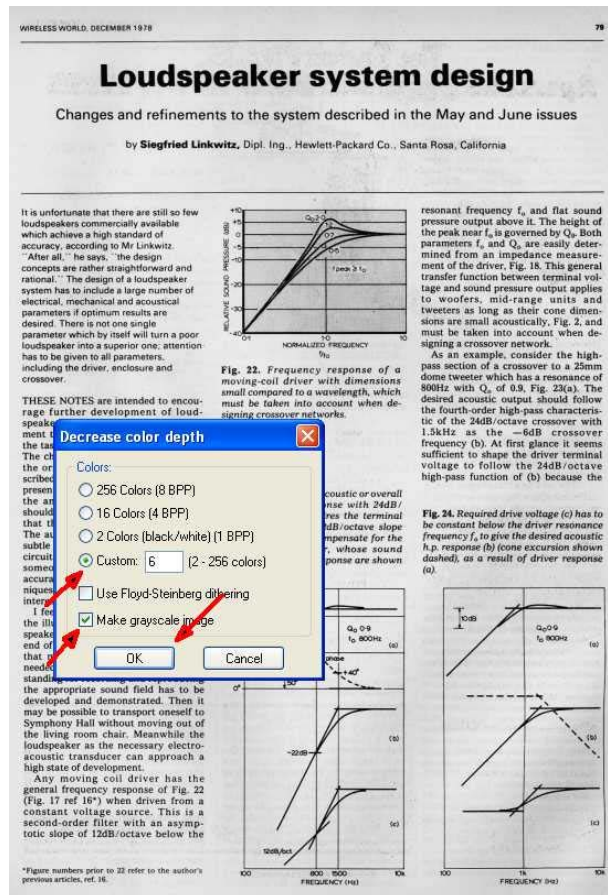
This coarse gradation now leads to a "veil" of greyness, which needs to be removed (see the image below).

Using >Image >Palette >Color palette, we can see the 6 shades of gray. We now select, by double clicking, the lightest of these shades (which would be our "veil" of greyness), and click OK. In the next window we then assign the value "white" to this selected shade, and again click OK. The resulting image has a strong contrast with white background, which is also quite suitable for printing.

Loudspeaker system design

Changes and refinements to the system described in the May and June issues

by **Siegfried Linkwitz**, Dipl. Ing., Hewlett-Packard Co., Santa Rosa, California

It is unfortunate that there are still so few loudspeakers commercially available which achieve a high standard of accuracy, according to Mr Linkwitz. "After all," he says, "the design concepts are rather straightforward and rational." The design of a loudspeaker system has to include a large number of electrical, mechanical and acoustical parameters if optimum results are desired. There is not one single parameter which by itself will turn a poor loudspeaker into a superior one; attention has to be given to all parameters, including the driver, enclosure and crossover.

THESE NOTES are intended to encourage further development of loudspeakers, and bring increased enjoyment to those who want to undertake the task of building their own systems. The changes and refinements made to the original loudspeaker system, described in the May and June issues, are presented to show the completeness of the analytical design approach, and should not be taken as an indication that the previous system is obsolete. The audible effects of the changes are subtle and the added complexity of the circuits would be worthwhile only to someone trying to achieve greatest accuracy of reproduction. But the techniques described should be of general interest to any loudspeaker design.

I feel the weakest link in recreating the illusion of a life source with loudspeakers lies at the microphone pick-up end of the signal chain. It seems likely that more than two loudspeakers are needed, but first a much better understanding for recording and reproducing the appropriate sound field has to be developed and demonstrated. Then it may be possible to transport oneself to Symphony Hall without moving out of the living room chair. Meanwhile the loudspeaker as the necessary electro-acoustic transducer can approach a high state of development.

Any moving coil driver has the general frequency response of Fig. 22 (Fig. 17 ref 16*) when driven from a constant voltage source. This is a second-order filter with an asymptotic slope of 12dB/octave below the

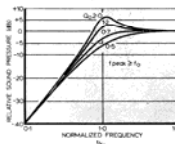*Figure numbers prior to 22 refer to the author's previous articles, ref. 16.

Fig. 22. *Frequency response of a moving-coil driver with dimensions small compared to a wavelength, which must be taken into account when designing crossover networks.*
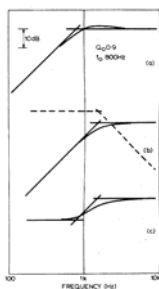
Fig. 23. *To achieve an acoustic or overall high-pass filter response with 24dB/ octave slope (b), requires the terminal voltage to follow a 12dB/octave slope below resonance to compensate for the effects of the driver, whose sound pressure and phase response are shown at (a).*
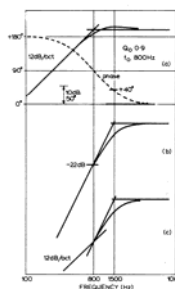
resonant frequency f_s and flat sound pressure output above it. The height of the peak near f_s is governed by Q_t. Both parameters f_s and Q_t are easily determined from an impedance measurement of the driver, Fig. 18. This general transfer function between terminal voltage and sound pressure output applies to woofers, mid-range units and tweeters as long as their cone dimensions are small acoustically, Fig. 2, and must be taken into account when designing a crossover network.

As an example, consider the high-pass section of a crossover to a 25mm dome tweeter which has a resonance of 800Hz with Q_t of 0.9, Fig. 23(a). The desired acoustic output should follow the fourth-order high-pass characteristic of the 24dB/octave crossover with 1.5kHz as the —6dB crossover frequency (b). At first glance it seems sufficient to shape the driver terminal voltage to follow the 24dB/octave high-pass function of (b) because the

Fig. 24. *Required drive voltage (c) has to be constant below the driver resonance frequency f_s to give the desired acoustic h.p. response (b) (cone excursion shown dashed), as a result of driver response (a).*

The final result is shown here.

After ultimately saving the image in PNG format, it will have a file size of about 100...300 KB.

5. Approval

After a proper and successful uploading, the image(s) will be approved and unlocked by an administrator. An administrator will get in contact with you if some clarification is still required. If by mistake you uploaded an incorrect image, please inform the administrator. If an image is linked to a wrong book, an administrator can fix it; however, this is not possible in the case of journals.

Unreadable text pages will be removed by an administrator.