COLOUR
MANAGEMENT
WORKFLOW
ANALYSIS

THE GRAPHIC ARTS INSTITUTE OF DENMARK

ifra

Content

Foreword

The following report is the first part of the Danish Colour Management project. The scope of this part is to document how different newspapers approach colour management. From this documentation, any newspaper should be able to find inspiration in how to make colour management work in their own surroundings.

The descriptions are made to pinpoint the CM issues, and thus you will find that the descriptions are very brief with respect to the other aspects, which could have been interesting to study. However, the model for this description was approved at a meeting at the Ifra Colour Management Workgroup in Darmstadt on the 15 April 1999.

The newspapers described were chosen from a list generated at the above-mentioned meeting. The final list of eight newspapers was chosen by the Danish DDPFF/Kvalitetsgruppen.

The newspapers were:
Aftonbladet, Stockholm
Associated Newspapers, London
Berlingske Tidende, Copenhagen
Børsen, Copenhagen
Dagens Nyheter, Stockholm
The New York Times, New York
Politiken, Copenhagen
The Scotsman, Edinburgh

The work was carried out by, firstly, contacting the actual newspaper and sending a model description, and also telling the newspaper what sort of information would be of interest. Then, I met with a newspaper representative at the premises of each of the respective newspapers. Usually, I was presented with material that supported the description, but not always. We discussed production and I met with certain people who were responsible for different parts of the workflow.

Back in Copenhagen, I made the description according to the model and what had been described and told to me and from what could be seen in other schemes and models. Not surprisingly, these three things did not always correspond. Thus, I then had to decide which to use to make the puzzle seem right. When the description was made, I sent a PDF (or fax) to my contact person, who then corrected any mistakes I had made. Minor alterations were made and no further files were sent. If there were major differences between the first and second drafts, they were sent for approval.

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Summary

Even though I have written the following descriptions to provide inspiration and to show how different implementations are made, it is obvious that there seems to be some consensus about certain aspects of colour management. In the following, I will try to emphasise these aspects.

One might feel tempted to say that a general feature is that they all seem to be very different. When talking about the editorial workflows, there are no two identical workflows among these descriptions. Yet when it comes to advertising, they all seem to take a cautious approach. This means that all newspapers only accept CMYK separated electronic advertisements, due to issues concerning responsibility. However, in Sweden and in a few other places, the newspapers supply the advertisers/repro houses with ICC profiles for the newsprint. The experience gained from this has been, so far, very positive.

The CM workflows described are basically editorial workflows, generally concerning:

• RGB to CMYK conversion

There seem to be two different ways of dealing with this process: The fully automated process, where images are treated in RGB and converted automatically later on in the process without any further quality control, and the alternative approach, which is to use a CMYK soft proof of the file. This can be done either by displaying an RGB file through a CMYK separation table or an ICC profile in Photoshop, or by simply converting the RGB file to CMYK and then displaying it through the actual colour settings in software similar to Photoshop. The difference is in whether you want to verify the final result (CMYK) at the image editing stage, or rely on the RGB representation of the image. As many people, even trained pre-press staff, react negatively to a CMYK soft proof of newsprint, one often finds that a more contrasty and saturated RGB image is preferred for quality control.

• RGB colour spaces

All newspapers in this survey scan and save images in an image library for internal or external reuse. As the image will not necessarily be used again for newsprint, the most convenient thing to do is to keep images in a colour space that is more open for different usages. The colour spaces used are first of all RGB, and in most of the cases the RGB colour space is one chosen from the Adobe Photoshop colour workspace set-ups (RGB, ColourMatch RGB, etc.). One interesting thing is that even though all newspapers receive wire photos from major image agencies, there seems to be no common colour space, or even profiles, that are embedded with wire photos. This means that all wire images must be judged and edited before being sent down for production, as one never knows what sort of quality they are when presented on a local monitor.

• Scanner profiles

The story repeats itself when looking at scanner profiling. In most of the colour shops found at the newspapers, profiling of scanners is not implemented. Scannings are made "raw" and edited, in many cases, by the photographer himself. The reason for this, I believe, is that negatives are commonly used as a scanning media and, as there are no ICC standard tools for profiling negatives and as the photographer also often enhances the image with the editing tools, the monitor itself becomes the original reference point.

• Monitors as references

That the monitor becomes the reference implies that it is calibrated and profiled and a well-defined colour space is used. It is generally so at all the newspapers. Calibration is done with more or less advanced tools, from the Knoll gamma software for Macintosh to the Barco Calibrator. Profiles are generally generated by measuring the monitors with standard spectrophotometers/colorimeters such as X-Rie OptiCal or Gretag Spectrolino, and as a general workspace we have already mentioned that colour spaces like Colormatch RGB are popular. Typically, calibration is done as often as profiling. This varies from every fortnight to every third month. At The Scotsman, calibration is done on a daily basis by the operator, a procedure well known from many pre-press houses.

• CM at the page layout stage

Generally speaking, no newspaper uses CM at the page layout stage. The primary reason for this is that CM in QuarkXPress, in the versions used when this survey was made, or in other page make-up programs, were either inadequate or completely lacking. But even if the CM module in the page layout programs had a sufficient level, it has generally been said that it will only be used if it is automatic and will not slow down any processes.

• Hard proofs

Hard proofs in the editorial workflow are used very differently. From only black and white layout control to colour proofs, generated using ICC profiles and print simulation for press optimisation.

• Soft proofing

At three newspapers, a soft proof is made for final quality control of the separated and bitmapped files (Tiff group4). At Politiken and The New York Times, the soft proof is made using internal Parascan software but the colour look-up tables are generated using ICC profiles and the soft proof is displayed in colours. At The Scotsman, the soft proof is a control of each separation. At Politiken, the soft proof is the reference in the printroom.

• Press profiles

With one exception, all newspapers generate their own press profiles. For most of the newspapers, the situation is that the profiles are a kind of average profile of two or more printing presses or of several printruns. In Sweden, the newspaper industry has decided to supply the advertisers with a standard newspaper profile, which will produce a good result on all Swedish presses if run with grey bar control.

• Profile generating tools

The measuring device for press profiles is definitely Gretag Spectrolino, and Spectroscan is used by all newspapers that make their own press profiles. With monitor profiles, more diversity is shown. X-rite's OptiCal is popular and Spectrolino is used as well as Sequel sensor and the Barco Calibrator. The diversity continues when choosing the software for running the hardware devices: Gretag ProfileMaker, Heidelberg ColorOpen, ColorBlind, Agfa ColourTune and others.

• Automation

Only a few of the newspapers rely on manual conversion processes (RGB to RGB, or RGB to CMYK) except in special situations. This means that images are generally converted automatically when sent to the picture desk, downloaded to print production servers or at the output stage. One company stands out by having three different implementations of their products in connection with other production software, and that is the Norwegian Fotoware and their Fotostation image browser and the Color Factory colour management server. However, other solutions can be seen at Politiken and Børsen.

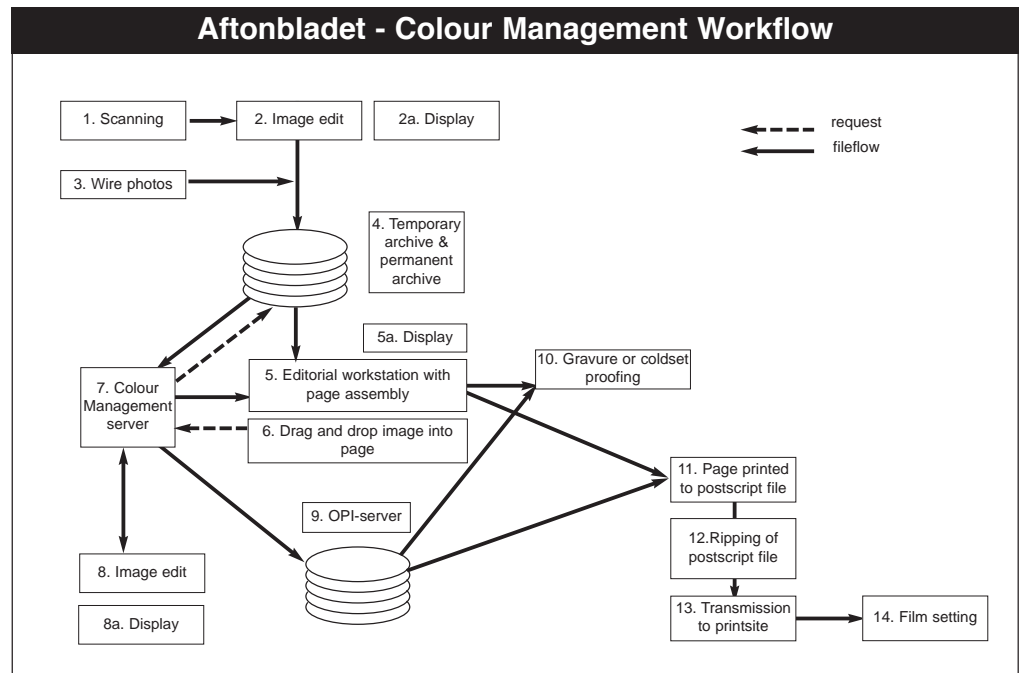# Colour Management Workflow at **Aftonbladet, Stockholm**

Editorial site

1. Images are scanned on calibrated scanners or shot with digital cameras. All images are scanned to the same size (27 MB approx.) in RGB. No conversion or embedding of profiles takes place.

2. The images are corrected according to the photographer's/scanner operator's wishes in Photoshop.

2a. Images are displayed on calibrated and profiled monitors (gamma 1.8/wp 5000° K). Monitors are Radius Pressview, which are calibrated and profiled on a monthly basis.

3. Wire photos are dropped directly into a temporary archive without corrections.

4. Two options are available when storing images in a temporary archive. The images are corrected and downloaded, marked with "ready for automated repro", or they are not corrected and marked "not ready for automated repro". When images are downloaded in the temporary archive they are available for the editorial department. Standard moni-

tor profile is embedded (ColorMatch RGB).

In the temporary archive (OpenStore), a low-res JPEG image is created for viewing at the editorial workstation.

5. At the editorial workstation, images can be fetched from the temporary archive (with the newly scanned images) or from the permanent image archive.

5a. No general calibration or profiling is used in editorial departments.

6. Images are dragged and dropped into QuarkXPress (an OpenStore functionality). There is no CM func-

tionality at the editorial workstation, even though a few workstation monitors are calibrated.

7. When images are placed, or when the page is saved, an automatic process starts. If images are marked "ready for automated repro", a request is sent to the repro server (FotoSync Color Factory), which calls the high-res image from the temporary or the permanent archive. Then the high-res image is scaled, cropped, sharpened and converted from RGB to CMYK using Kodak CMS and ICC profiles. ColorMatch RGB for the input and Aftonsbladet's own newsprint or gravure

profile for the output. A high-res image is sent on to the OPI server.

8. If images are marked "not ready for automated repro", the request goes back to the repro department, where they evaluate and correct the image according to the crop and scale parameters, as well as the wishes of the editor. A CMYK preview is made in Photoshop using the relevant ICC profiles and the Kodak CMM. When ready, the image is passed on to the repro server (FotoStation Color Factory), which converts (as above) and downloads the high-res image to the OPI server.

Aftonbladet - Colour Management Workflow

- 1. Scanning
- 2. Image edit
- 2a. Display
- 3. Wire photos
- 4. Temporary archive & permanent archive
- 5a. Display
- 7. Colour Management server
- 5. Editorial workstation with page assembly
- 6. Drag and drop image into page
- 10. Gravure or coldset proofing
- 9. OPI-server
- 8. Image edit
- 8a. Display
- 11. Page printed to postscript file
- 12. Ripping of postscript file
- 13. Transmission to printsite
- 14. Film setting

request
fileflow

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8a. See 2a.

9. A high-res version is now stored on the OPI server and a low-res OPI file is returned to the editorial station, where it replaces the low-res JPEG file in the Quark document automatically.

10. The final page can be proofed on a Canon printer (700 or 900) with an Edox RIP. The RIP allows CMYK to CMYK conversion using ICC profiles, but only as a pre-setting, not by reading embedded profiles. Thus, one printer is set up for ordinary newsprint and the other for Gravure print.

11. Pages are printed to Postscript.

12. Final pages are gathered and ripped at the editorial site. All elements at this stage are CMYK, and therefore no CM is involved.

13. Bitmapped pages are transmitted to the printsite via the Parascan Wydnet-system.

14. Pages are output linearised on image setters or CTPs. No CM at this stage.

Advertisements

Display ads and full-page ads are received electronically as EPS files, CMYK separated. Separation tables are available from the Aftonbladet homepage (www.aftonbladet.se) as an ICC or Adobe Separation Table. Separations are also accepted when using the standard profile for the Swedish newspaper industry, available from Tidningsutgivernes homepage (www.tu.se).

Colour Management and profiling software used:

Scanner profiles:	None
Monitor profiles:	X-Rite monitor optimiser (OptiCal)
Output profiles:	Logo ProfileMaker and Gretag Spectrolino/scan
Profile editing tools:	Editing not allowed
Colour Management system:	ColorSync at Mac FotoSync ColorFactory (Kodak CMS) at NT server Kodak CMS at Edox RIPs
CMM in use:	Kodak CMM

Other applications and hardware in use:

Scanning:	Polaroid Sprintscan
	Imacon Flextight Precision
Image editing:	Adobe Photoshop 5.02 Radius Pressview monitors (monitors are calibrated and profiled on a monthly basis).
Page assembly:	Quark XPress 3.3x Macintosh with standard Trinitron monitors. No CM at this stage. Colours are chosen from the Swedish newspaper industry's colour book.
Illustrations:	Adobe Illustrator 8. Colours are chosen from the Swedish newspaper industry's colour book. No CM at this stage.
Image and repro servers:	The automatised image workflow is handled by software from the Swedish company Interbizz (OpenStore). The colour conversion, scaling, cropping and sharpening is handled by software from the Norwegian company Fotostation (ColorFactory).
OPI:	Hyphen OPI and RIPs running on Sun Solaris
Output:	Canon printers for proofing with Edox RIPs handling CMYK to CMYK conversion with ICC profiles. RIPs at editorial site and image setters at the printsite. No CM at this stage.

Colour Management Workflow at **Associated Newspapers Ltd, London**

Editorial department

The workflow in the editorial department is different on each newspaper (Daily Mail, Evening Standard, Mail On Sunday and the Metro). The following description is the workflow at the Metro, the one considered to be the workflow of the future.
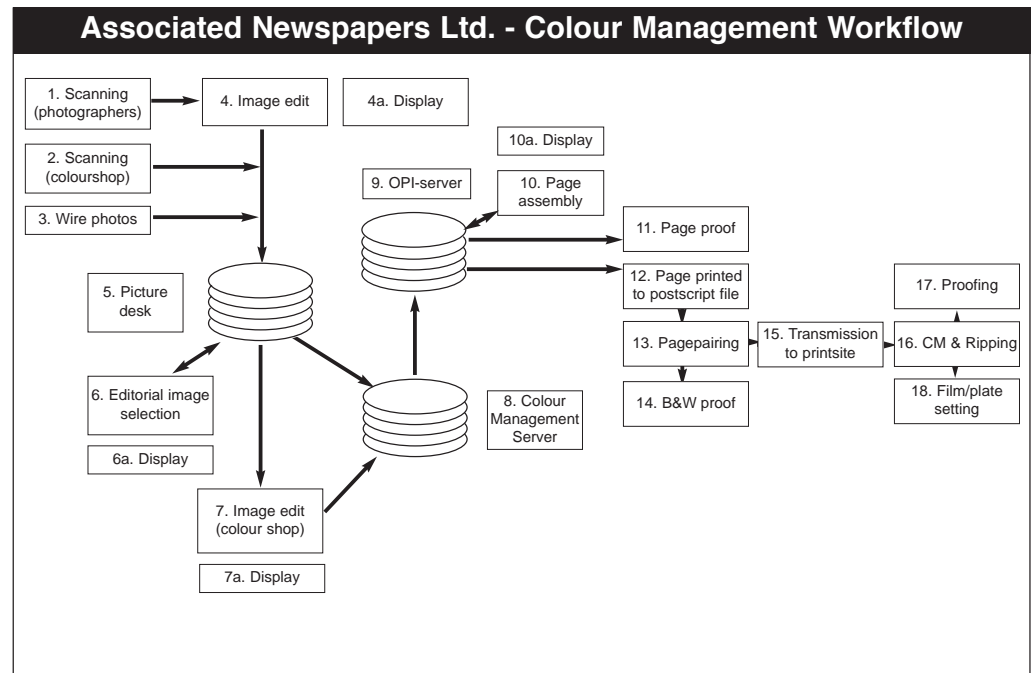
1. Editorial photographers are scanning their own images in the editorial departments. Standard scanning set-up, no cropping, standard sizing and no conversion takes place. No embedding of profiles.

2. In the colour shop department, images from other sources are scanned as above. No cropping, standard sizing, and no conversion takes place. No embedding of profiles.

3. Wire photos are received as they are. No profiling or corrections.

4. Editorial photographers make simple initial corrections using FotoStation's editing facility (brightness, contrast, gamma,...).

4a. Monitors are calibrated and ICC profiled.

Associated Newspapers Ltd. - Colour Management Workflow

1. Scanning (photographers) → 4. Image edit 4a. Display
2. Scanning (colourshop)
3. Wire photos
5. Picture desk
6. Editorial image selection
6a. Display
7. Image edit (colour shop)
7a. Display
9. OPI-server 10a. Display 10. Page assembly
8. Colour Management Server
11. Page proof
12. Page printed to postscript file
13. Pagepairing
14. B&W proof
15. Transmission to printsite
16. CM & Ripping
17. Proofing
18. Film/plate setting

Images are judged on display quality. No newsprint simulation is intended on screen.

5. Files are saved as JPEG RGB into the FotoWare Picture desk and the FastPhoto Library.

6. At the editorial workstations, images are chosen from the picture library for production. Cropping and sizing instructions are carried out. If the image is OK, it is passed on to the ColorFactory server (see 6). If the image is not satisfactory, it is sent on to colour shop department (see 7).

7. In the colour shop, the image is manually retouched, cropped, scaled, sharpened and converted into the Lab colour space. The monitor is calibrated and ICC profiled. Photoshop is set up to a user defined standard RGB colour space (gamma 1.8, white point 6500 K°).

8. At the ColorFactory server, the image is cropped, scaled and sharpened according to the instructions and then converted into Lab colour space. The conversion from RGB to Lab implies an RGB profile which has the same specifications as the one in Photoshop (see below). The Lab colour space is 2°/D65.

9. From the ColorFactory server, images are sent down automatically to the OPI server. A low resolution is generated and becomes available for the page layout workstations.

10. The page layout program is QuarkXPress, but no CM facilities are used in QuarkXPress at this time.

10a.Monitors are calibrated and profiled.

11. Final pages are proofed locally on Canon colour proofers. CM is used on a standard basis, which means that the internal Canon colour calibration/ conversion is used, not the

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ICC colour management with special generated profiles.

12. Final pages are printed to file (Postscript) and sent on for page pairing.

13. Page pairing at Mediabase customised page-pairing system.

14. Black and white proofing on Canon proofers with RIPs identical with the RIPs at the printing site.

15. Transmission to printsite via mega stream line (T2).

16. At the printsite, a Cascade RIP is ripping the data and using a Postscript CRD for converting the Lab data into CMYK. The PostScript CRD is generated in the same way as the corresponding ICC profile.

17. Pages are proofed on Iris proofers. No simulation is intended, but a standard conversion from print CMYK to proof CMYK using the Cascade RIP software.

18. Pages are imaged on Optronics 4000 image setters.

Advertisements

Display ads and full-page ads are received electronically as EPS files, CMYK separated. The ads are delivered by a licensed repro house, which guarantees the production quality. Ads are proofed on Iris proofers with Cascade RIPs at the printsite.

Colour Management and profiling software used:

Scanner profiles:	None
Monitor profiles:	XRite DTP92 and ColorBlind
Output profiles:	Gretag Spectrolino/Spectroscan and ColorBlind
Profile editing tools:	ColorBlind (for editing output profiles)
Colour Management system:	ColorSync at Mac workstations Cascade CEPS RIPs with especially generated CRDs at printsite FotoSync at the ColorFactory server
CMM in use:	Kodak CMM at Mac stations Cascade generated system in RIP Kodak CMM in ColorFactory

Other applications and hardware in use:

Scanning:	Scitex Smartscanner 342 Kodak 2035 Agfa Horizon
Image editing:	Adobe Photoshop 5.0x Eizo monitors
Page assembly:	QuarkXPress 3.xx
Illustrations:	Adobe Illustrator 8.x. No CM at this stage.
Image server:	The "Management of Image Production System" is a rather complex system, one that is based around a Cascade PhotoTrak software running on a Sun 4000. Incorporated in the concept is the FotoStation as an imagebrowser and a simple acquire tool/editor and the ColorFactory as a colour conversion server.
OPI:	IPT Canopy
Output:	Editorial proofs are made on Canon 700. Advertising proofs are at the print site on an Iris proofer. RIPs at the editorial site are Canon RIPs. RIPs at page-pair proofer, IRIS proofers and image setters are Cascade (Adobe CEPS).

Colour Management Workflow at **Berlingske Tidende, Copenhagen**

CM workflow in the advertising, image bureau and editorial departments

Workflow in the advertising department

1. Internally produced ads are scanned on Agfa scanners. The Agfa FotoLook software is set up to convert from the scanner RGB into ColorMatch RGB using the ICC profiles for the specific scanner and the ColorMatch colour space

2. Image editing is done in Photoshop 5.5. The separation set-up is ICC, workspace ColorMatch RGB and separation profile is one of three print profiles.

3. The monitors (Apple Studio Displays) are calibrated to gamma 1.8 and white point 5000° K using the internal ColorSync software. Monitors are calibrated and profiled every three months.

4. Ads are composed in QuarkXPress without any CM set-up.

5. Hard proofs are made on a Lexmark printer without any CM.
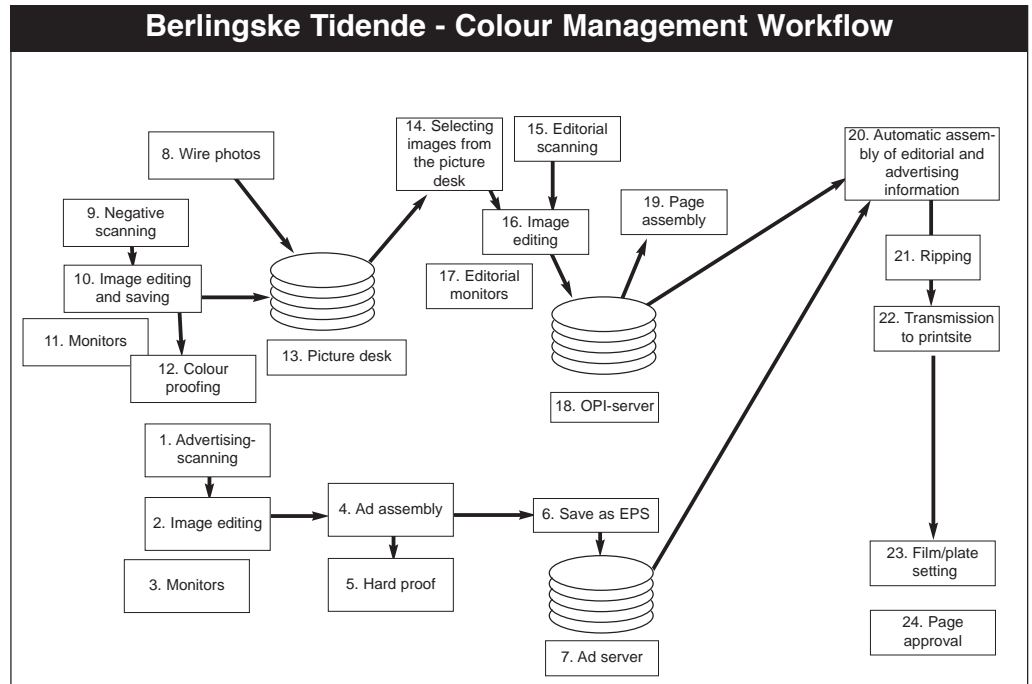
6. Final ads are printed as Postscript files to the OPI server.

7. At the OPI server a low-res file is generated for placement in the Atex IAS system.

Workflow in the image bureau (Nordfoto)

8. Wire photos are received and archived untouched as RGB. All images are assumed ColorMatch RGB.

9. Images are scanned internally with Leaf T35 or ScanMate F8. No scanner profiles are used.

10. Images are edited in Photoshop as RGB. The image is saved into the image server as JPEG RGB with ColorMatch RGB profile embedded. Photoshop is set up accordingly.

11. See 3.

12. For quality control, images can be output on a Sienna RGB printer (exposing photo paper). The print sequence and conversion are done by Fotostation/Color Factory and profiles are chosen in that set-up. Profiles are ColorMatch RGB and a specially generated ICC profile (RGB output!).

13. The MIPS picture desk is a self-constructed image bank. It is a Unix based system with an Apache server.

Workflow in editorial

14. Images are chosen from the image base.

15. Internally scanned or digitally captured images are input into Photoshop without conversion, ColorMatch RGB assumed.

16. Images are separated using the ICC profile, set up with ColorMatch RGB as source and the average print profile as destination. Images are sent to

Berlingske Tidende - Colour Management Workflow

- 8. Wire photos
- 9. Negative scanning
- 10. Image editing and saving
- 11. Monitors
- 12. Colour proofing
- 13. Picture desk
- 14. Selecting images from the picture desk
- 15. Editorial scanning
- 16. Image editing
- 17. Editorial monitors
- 18. OPI-server
- 19. Page assembly
- 20. Automatic assembly of editorial and advertising information
- 21. Ripping
- 22. Transmission to printsite
- 23. Film/plate setting
- 24. Page approval
- 1. Advertising-scanning
- 2. Image editing
- 3. Monitors
- 4. Ad assembly
- 5. Hard proof
- 6. Save as EPS
- 7. Ad server

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OPI server after editing, cropping, sharpening and scaling.

17. See 3 and 11.

18. From the OPI, low-res images are generated for placement in the Atex EdPage.

19. Pages are assembled in the EdPage program.

20. Final page elements are gathered for output.

21. Pages are ripped on the auto logic RIPs and saved as TIFF/ITg4.

22. Pages are transmitted to printsites via Parascan PageLink.

23. Pages are exposed on Agfa CTPs.

24. Page approval is based on grey bar control.

Externally produced advertisements

Advertisements are received fully electronically as CMYK separated EPS files via the ADS (advertisement delivery system). They can be accompanied by proofs. Advertisements can also be delivered as films. They will be scanned on a copy dot scanning system to be integrated into the workflow. The separations are made according to Danish standards for newsprint (www.kankanikke.dk).

As a special service for customers, Berlingske offers to set up the colour management system for their clients. This includes profiling of input equipment, setting up Photoshop and the installation of the averaged output profile. This has been successful, especially for the property market.

Colour Management and profiling software used:

Scanner profiles:	Linotype ScanOpen
Monitor profiles:	Linotype ViewOpen and Spectrolino
Output profiles:	Linotype PrintOpen and Gretag Spectrolino/Spectroscan
Profile editing tools:	Kodak Custom Color Profile Editor (Photoshop Plug in)
Colour Management system:	ColorSync on Macs
CMM in use:	Apple ColorSync default

Other applications and hardware in use:

Scanning:	Agfa Horizon Agfa T2000 Agfa T5000 Leaf T35 Scanview F8+
Digital cameras:	Kodak DCS 520 (Canon)
Image editing:	Adobe Photoshop 5.5
Page assembly:	Atex EdPage and Atex IAS
Illustrations:	Adobe Illustrator
Image server:	MIPS (self-constructed image library)
OPI:	Helios Ethershare
Output:	Autologic RIPs Lexmark 1200 Sienna colour printer Agfa Polaris 100 CTPs

Colour Management Workflow at **Børsen, Copenhagen**

Editorial department

1. Images at Børsen are primarily wire photos from news agencies and freelance photographers. Wire photos are not given any special treatment.

2. Colour originals are scanned on Imacon flex tight scanners. In the scanning process the files are converted from scanner RGB to monitor RGB using profiles supplied by the scanner supplier. Image correction is done using the scanner software.

3. Monitors are calibrated via the Knoll gamma software on a daily basis. The target is gamma 1.8/ 5000° K. No colour management or profiling is used.

4. Images are saved into the Saxotech Picture Desk as JPEG RGB.

5. In the editorial department, images are selected from the picture desk browser and initially cropped and scaled after standard specifications. Information about cropping and scaling is passed on to the image preparation server.

Børsen - Colour Management Workflow
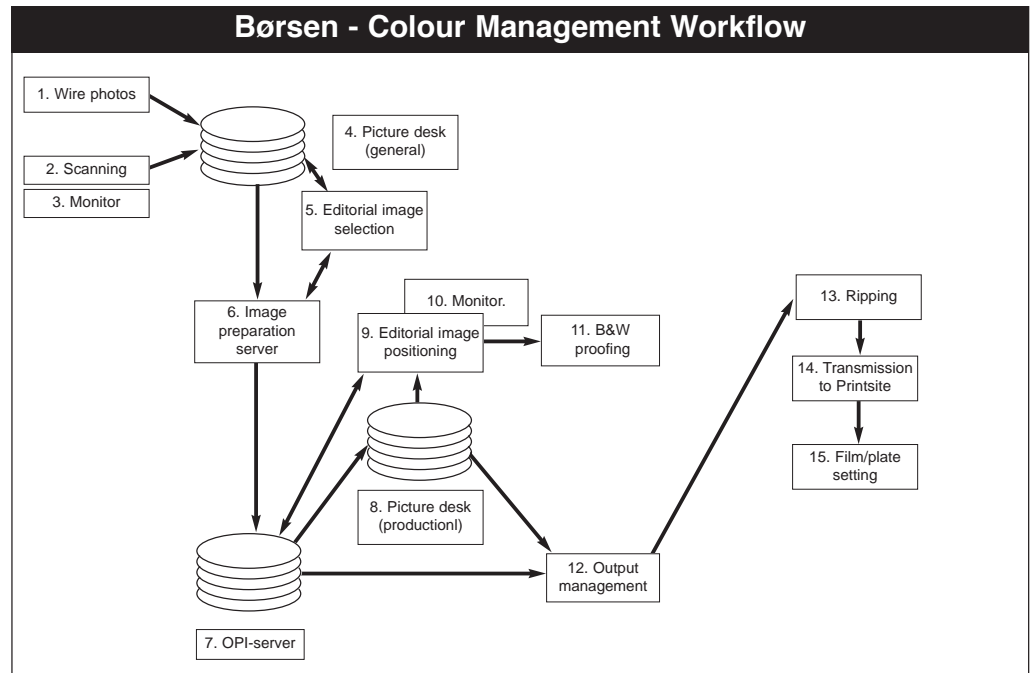
6. The image preparation server activates the PhotoRace colour conversion software, which crops, scales and converts the images from RGB to CMYK. The conversion is done using proprietary profiles, which can be altered by simple means, although not by using ICC profiles even though it is possible.

7. A high-res CMYK file is passed on to the OPI server.

8. A low-res is generated and returned to the picture desk (production portion) for editorial placement in the page layout program.

9. The image is positioned in QuarkXPress and if necessary the high-res version is called via the Saxotech QX extension for further simple image corrections. The corrections are carried out by the editors.

10. CM facilities in QX are not in use and monitors are not calibrated against any specific standard or profiled at the editorial site.

11. Final pages are proofed on black and white printers.

12. Final pages are gathered at the output man-agement department and printed to Postscript files.

13. The Postscript files are ripped in an AutoLogic softPIP to Tiff/ITg4 format.

14. The Tiff files are transmitted to the printsite

15. Files are imaged on image setters with no proofing.

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Advertisements

Display ads and full-page ads are received electronically as EPS files, CMYK separated. Separations are made according to standards specified by DDPFF (www.ddpff.dk/web/home.nsf/HTDocs/kvalgrp3.html).

Advertisements produced in-house are scanned on Agfa Horizon or T5000 scanners. The images are directly converted into CMYK by the FotoLook/FotoTune software using ICC scanner profiles and a newsprint profile created specifically for Børsen (which is printed on pinkish newsprint). The monitors are Radius Precision Color Display calibrated to D50/1.8 gamma. Calibration and profiling is intended to take place every three months. Photoshop 4.0 is used for image editing, set up with ICC generated profile as PS-table.. The image is then placed in a QuarkXPress 4.0x document.

Colour Management and profiling software used:

Scanner profiles:	Agfa ColorTune
Monitor profiles:	Gretag ProfileMaker 2.3.5
Output profiles:	Gretag ProfileMaker 2.3.5 and Gretag Spectrolino/Spectroscan
Profile editing tools:	No profile editing of ICC profiles. PhotoRace tables are edited with PhotoRace software.
Colour Management system:	ColorTune at internal advertising scanning ColorSync at editorial scanning PhotoRace at editorial separation
CMM in use:	ColorTune CMM, ColorSync (default) and PhotoRace

Other applications and hardware in use:

Scanning:	Imacon Flextight Precision Agfa Horizon Ultra Agfa T5000
Image editing:	Adobe Photoshop 4.0 Radius Precision Color Display
Page assembly:	QuarkXPress 4.0x
Illustrations:	Adobe Illustrator 8
Image server:	Saxotech image base
OPI:	Auto logic
Output:	Auto logic SoftPIP Image setters are at an external print house

Colour Management Workflow at **Dagens Nyheter, Stockholm**

Editorial department

1. Images are scanned on negative scanners. All images are scanned to the same size in RGB. No conversion or embedding of profiles takes place.
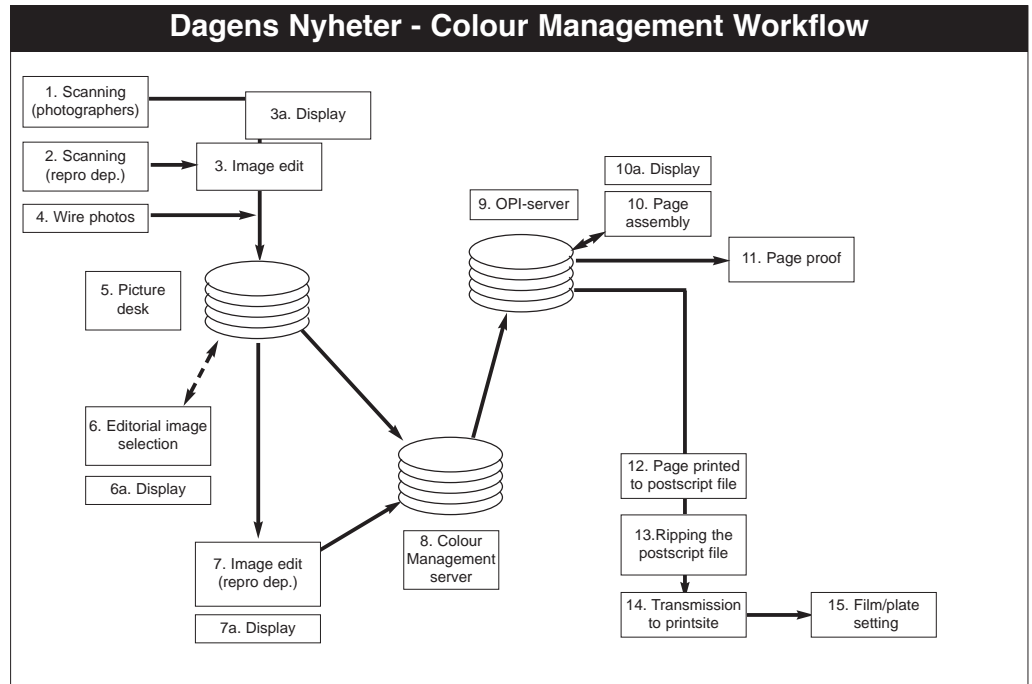
2. Images from sources other than the photographers are scanned by the repro department, much in the same way as the photographers do it.

3. Initial corrections are made by the photographers or repro department, but no cropping or scaling takes place.

3a. Images are displayed on calibrated and profiled Macintosh based monitors. Calibration and profiling made by X-Rite OptiCal (spec. 1.8/5500° K). Calibration and profiling takes place on a monthly basis.

4. Wire photos are without initial control or correction.

5. Images are stored as JPEG RGB in a FotoStation archive. Images are now available for the editorial department via the FotoStation software.

Dagens Nyheter - Colour Management Workflow

1. Scanning (photographers)
2. Scanning (repro dep.)
3a. Display
3. Image edit
4. Wire photos
5. Picture desk
6. Editorial image selection
6a. Display
7. Image edit (repro dep.)
7a. Display
8. Colour Management server
9. OPI-server
10a. Display
10. Page assembly
11. Page proof
12. Page printed to postscript file
13.Ripping the postscript file
14. Transmission to printsite
15. Film/plate setting

6. At the editorial workstation, images are fetched from the archives via the FotoStation software. Images are marked with cropping and scaling parameters. Specific wishes about the image editing are typed in an electronic job sheet for the photo-department if necessary.

6a. No calibration or profiling at editorial workstations.

7. The image shows up in a "to-do" folder at the repro department, and an image-note, explaining the task, is attached.

7a. See 3a.

8. The ready RGB image is passed on to the colour management server where it is automatically cropped, scaled, sharpened and converted to CMYK. Profiles engaged are standard RGB (ColorFactory default) and a specific CMYK profile for Dagens Nyheter (based on an average of their best presses).

9. At the Helios OPI server, a low-res is generated and becomes available for placing in the Quark document in the editorial department.

10. The images are placed in the page layout. No CM is used in QuarkXPress.

10a. See 6a.

11. Final pages are proofed in the editorial department on a Tektronix 780. No simulation at this stage, apart from using paper which is similar to newsprint.

12. Final pages are printed to Postscript files.

13. The Postscript files are ripped at the editorial site. At this stage, all elements are CMYK and therefore no CM is involved. The resulting file is a Tiff group4 bitmap file.

14. Bitmapped pages are transmitted to the printsites.

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15. Pages are output lin-
earised on image setters.
No CM at this stage.

Advertisements

Display ads and full-page ads are received electronically as EPS files, CMYK
separated. Separations are made according to standards specified by
Tidningsutgiverne. ICC profile is available from Tidningsutgiverne's home-
page (www.tu.se) or directly from Dagens Nyheter.
Advertisements produced in-house are scanned on Heidelberg Topaz or
Heidelberg Saphir and via the LinoColor software converted directly to
CMYK.

Colour Management and profiling software used:

Scanner profiles:	None
Monitor profiles:	X-Rite monitor optimiser (OptiCal)
Output profiles:	Logo ProfileMaker and Gretag Spectrolino/Scan
Profile editing tools:	Editing not allowed
Colour Management system:	ColorSync at Mac FotoSync ColorFactory (Kodak CMS) at NT server
CMM in use:	Kodak CMM at NT server and Adobe built-in in Photoshop (Mac)

Other applications and hardware in use:

Scanning:	Polaroid Sprintscan Nikon Coolscan
Image editing:	Adobe Photoshop 5.5 SONY Trinitron Multiscan 300 (monitors are calibrated and profiled on a monthly basis).
Page assembly:	Quark XPress 3.32 Macintosh with standard Trinitron monitors. No CM at this stage. Colours are chosen from the Swedish news- paper industry's colour book.
Illustrations:	Adobe Illustrator 8. Colours are chosen from the Swedish newspaper industry's colour book. No CM at this stage.
Image and repro servers:	Colour conversion, scaling, cropping and sharpening using software from the Norwegian company Interfoto (ColorFactory, FotoStation).
OPI:	Helios
Output:	Editorial proofs are made on Tektronix 780 RIPs at editorial site are Autologic Soft-Pip. Image setters at printsite are Hell recorders.

# Colour Management Workflow at **The New York Times**

Editorial department

1. Wire photos and digital camera images are loaded directly into an image server as RGB JPEG. No profiles are embedded. No corrections are made.

2. The photo department scans negatives in RGB/JPEG format. No re-touching or colour management takes place at this time.

3. Editors choose images from the asset management system.

The New York Times - Colour Management Workflow

4. Designer decides crop and size and passes it on for production.

5. The RGB images are opened in Monaco CM software, which is set up with a monitor and output profile. Image corrections are made based on the visual impression. After corrections, the image (still RGB) is saved in Photoshop and via the Photoshop separation table is converted into CMYK. The separation table and monitor profile is based on the ICC profiles used in the Monaco software. Images are saved as EPS.
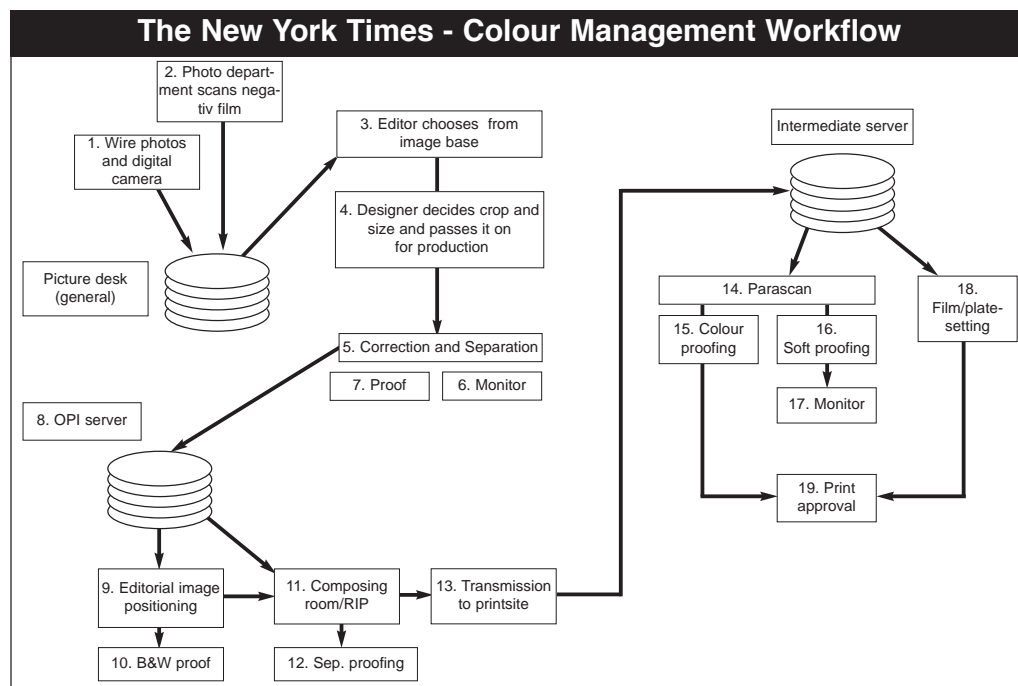
6. The monitor is a Mac-based Barco Calibrator. The monitor is calibrated and profiled every 14 days to 5000° K and gamma 1.8, using the built-in Barco measuring tool and hardware adjustment.

7. Individual images can be proofed on a Xerox Splash. No ICC simulation is intended, only Xerox internal conversion, but a "newsprint" tint is printed on the page to simulate authentic newsprint.

8. Separated files are sent to OPI server. Self-composing software checks if the files are CMYK. If not, they are rejected.

9. The editorial department places the low-res images in the Pagination software Ed-Page using Atex.

10. Black and white proofs are made to check the composition, image placement and type for the editors.

11. Approved pages are sent to the composing room where the final pages are ripped into TIFF/G4 file format.

12. A black and white proof is made of each separation on an HP LaserJet 5000.

13. Pages are transmitted to printsites.

14. Files are loaded into the Parascan for three reasons. For presetting ink-keys, for making a soft proof and finally for making digital hardcopies.

15. At the printsite, the pages are proofed on an HP DesignJet 1050C[1] on printing stock in rolls (reel stub) or on IRIS Realist FX proofers simulating printing stock. The bitmap images are re-sampled from 1-8 bit at a lower resolution and transfer curves are added, taking dot gain and max ink into account.

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16. Pages are soft proofed on Parascan using Colorman CLUT tables. The tables can have the colour of the stock paper added for simulation.

17. Monitors at the printsite are Mitsubishi SpectraView/1000. They are calibrated by an integral measuring device to 5000° K/gamma 1.8.

18. Film/plate setting on Triple I filmsetters at College Point and Edison printsite.

19. First prints are checked against proofs and approved once they match.

1. The DesignJets are not being used in production at the time of writing this report, but they are expected to enter production in the foreseeable future.

Advertisements

Ads are received fully electronically as EPS files. They are accompanied by proofs. The separations are made according to SNAP standards for newsprint.

Colour Management and profiling software used:

Scanner profiles:	No profiles
Monitor profiles:	Barco Calibrator and Mitsubishi Spectraview 1000
Output profiles:	So far, profiles for the press have been provided by R.I.T. using Kodak ColorFlow, but in the near future The NYT expects to produce its own profiles using Gretag equipment and Kodak software. The editorial department uses MonacoColor and Gretag equipment.
Profile editing tools:	No ICC profile editing takes place. Parascan/Silicon Graphic profiles are adjusted to simulate the press.
Colour Management system:	MonacoColor engine at editorial for simulation on monitor. Photoshop internal separation. Parascan's Colormanager for proofing at printsite.
CMM in use:	Monaco CMM for soft proofing at editorial.

Other applications and hardware in use:

Scanning:	Agfa Arcus II scanners Kodak RFS scanners
Image editing:	Adobe Photoshop 4.0x and Monaco
Page assembly:	EdPage by Atex
Illustrations:	Adobe Illustrator
Image server:	Canto's Cumulus T/One's Merlin
OPI:	Sun MGS
Output:	Monotype RIPs Scitex Brisque RIPs Triple I image setters HP DesignJet Proofers 1050 RIS Realist FX Xerox Splash HP LaserJet 5000

Colour Management Workflow at **Politiken, Copenhagen**
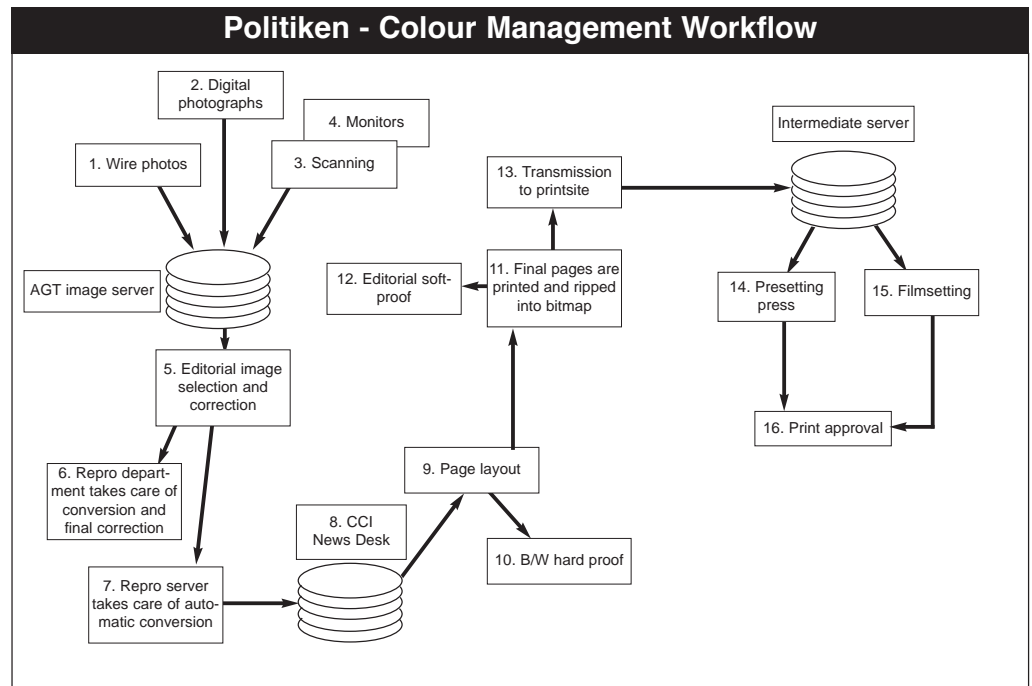
Politiken - Colour Management Workflow

Editorial department

1. Wire photos are loaded directly into an image server as RGB JPEG. No profiles are embedded. No corrections take place. ColorMatch RGB is the assumed colour space.

2. Digital photographs are loaded into server as RGB JPEG (with ColorMatch RGB profile embedded). ColorMatch RGB is chosen as it seems to be the de facto standard in the graphic arts industry and general implementation is of major importance for a newspaper.

3. Scanning is done with specific scanner profiles and converts the images into the ColorMatch RGB. Images are saved as RGB JPEG with ColorMatch RGB profile embedded. Scanner profiles are generated every three months.

4. Monitors are all calibrated to 5000° K/gamma 1.8 using the internal monitor procedure. Calibration is intended to take place daily. It is the intention to use the same monitor at all colour workstations. The monitor chosen is the Sony Multiscan G500. Monitor profiles are generated on a monthly basis.

5. The editorial department selects the images from the AGT image server for use in production. They apply cropping, sizing, unsharp masking, simple corrections (brightness, darkness, etc.) and retouch using the AGT image tools. From the editorial department, the image can go in two directions for separation: to the editorial repro department or for automatic conversion in the AGT server.

6. If the image is large or shall be used in a specific graphic context, the cropped, scaled and corrected image is sent on for separation in the editorial repro department, where they separate and make further corrections according to output result. Separations are made in Photoshop with ICC profiles (ColorMatch RGB to ICC Press Profile) and final corrections made by soft proofing the CMYK file.

7. All other images are sent on for automatic conversion (ColorMatch RGB to ICC Press Profile) in the AGT image server.

8. The separated CMYK TIFF images are passed on to the CCI system for positioning.

9. Images are positioned in the CCI system.

10. Final pages are hard proofed for text and layout control.

11. Final pages are printed to server and ripped into Tiff/G4 files on Harlequin RIPs.

12. On the Parascan system, the Tiff/G4 files are soft proofed via a Parascan look-up-table. The Parascan look-up-table is generated by converting a Parascan CMYK calibration file to RGB, in Photoshop using the above-mentioned profiles. Afterwards, the file is saved as a BMP file from

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which the Parascan renders a Parascan look-up-table for soft proofing. The soft proof can be viewed both in the editorial department and at the printsites.

13. Bitmapped pages are transferred to printsites by Parascan BitLink.

14. Presses are pre-set using the Parascan software.

15. Films are exposed on linearised Hell LS210 image setters.

16. Print is approved (under standard viewing conditions) by comparison with a Parascan soft proof.

Advertisements

Ads are received fully electronically as CMYK separated EPS files via the ADS (advertisement delivery system). They can be accompanied by proofs. Ads can also be delivered as films. They will be scanned on a copy dot scanning system to be integrated into the workflow. The separations are made according to Danish standards for newsprint (www.kankanikke.dk).

Colour Management and profiling software used:

Scanner profiles:	Linotype ScanOpen
Monitor profiles:	Linotype ViewOpen and the Sequel Sensor or Spectrolino
Output profiles:	Linotype PrintOpen and Gretag Spectrolino/Spektroscan
Profile editing tools:	No ICC profile editing takes place.
Colour Management system:	ColorSync on Macs ICM on Windows and NTs
CMM in use:	Kodak CMM on Macs, PCs and NTs Parascan's internal (non ICC)

Other applications and hardware in use:

Scanning:	Agfa Arcus II scanners Kodak RFS scanners
Digital cameras:	Nikon DC620 Canon DC580
Image editing:	Adobe Photoshop 5.5 and AGT (Applied Graphic Technology)
Page assembly:	CCI
Illustrations:	Adobe Illustrator
Image server:	AGT
OPI:	None
Output:	Harlquin RIPs Hewlett Packard b&w printers (Editorial hard proofs) Seiko Color Point 835PS (hard proofs for advertisements)

Colour Management Workflow at
The Scotsman, Edinburgh

Editorial department

1. Images are scanned as RGB on EskoScan 2540 or Itek 320-1. No embedding of profiles takes place.
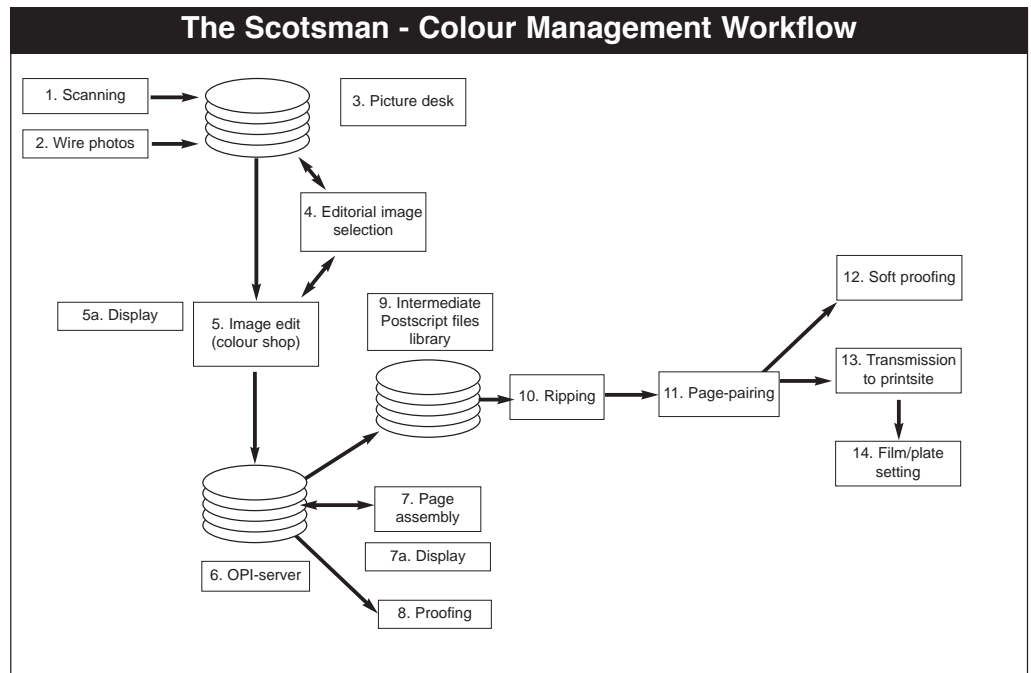
2. Wire photos are not given special treatment. They come without any indication of origin.

3. Images are saved in the Picture desk Photogrid as JPEG RGB.

4. When images are chosen for editorial use via Photogrid, an electronic request is sent to the repro department. In Photogrid, they can see the requested sizing and cropping.

5. At the repro department they crop, scale, re-res and convert (RGB to CMYK). All this is done in Photoshop 5.05. RGB workspace is BruceRGB (gamma 2.2, 6500° K). The separation table is a modified newsprint Adobe Separation Table.

5a. The monitor is a calibrated Radius Pressview 21SR. The calibration tool is the Knoll gamma software and is done by the operator on daily basis. Monitors are calibrated towards gamma 2.2 and white point 6500° K.

The Scotsman - Colour Management Workflow

1. Scanning
2. Wire photos
3. Picture desk
4. Editorial image selection
5a. Display
5. Image edit (colour shop)
9. Intermediate Postscript files library
12. Soft proofing
13. Transmission to printsite
10. Ripping
11. Page-pairing
14. Film/plate setting
6. OPI-server
7. Page assembly
7a. Display
8. Proofing

6. Files (CMYK) ready for production are downloaded to Hydra OPI server.

7. Low-res images can be fetched by the editorial department for positioning in the "Good news" page make-up system by Tera.

7a. Monitors in editorial are not calibrated or profiled.

8. Final pages can be printed on a Canon 700 with a Fiery RIP. Basic calibration to ensure good colour, but no simulation is done. No ICC colour management at this stage.

9. Postscript files (DCS 2.0) are generated from "Good news", and are then passed on to page production.

10. The PS pages are ripped (ECRM RIPs) to TIFF/g4 files.

11. Bitmap files are paired in a page-pairing system.

12. Pages are soft proofed on a Harland Simon soft proofing system, where ink settings are taken into account. The page production staff approves pages before sending.

13. Pages are transmitted to the printsite

14. Pages are exposed in pairs at ECRM KnockOut image setters.

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Advertisements

Display ads and full-page ads are received electronically as EPS files, CMYK separated. Separations are made according to standards specified by The Scotsman. EPS files are checked by AZUR, an Imation software for colour, fonts, etc.

Advertisements produced in-house are scanned on Agfa Horizon or T2000 scanners. Separation tables are the internal Agfa tables (ICC based), generated especially for each scanner and with a standard output profile (or was it an RGB scan which is separated in Photoshop?). The image is then placed in a QuarkXPress 3.32 document. The final ad is then proofed on a Tektronix Phaser 780 which uses ICC profiles. A standard profile for the proofer and a standard newsprint profile, which is squeezed to match the printed output visually. The proofer also prints on newsprint-like paper.

Colour Management and profiling software used:

Scanner profiles:	Agfa ColorTune for internally produced ads
Monitor profiles:	None
Output profiles:	None (standard, delivered by vendors)
Profile editing tools:	Profile at Tektronix printer has an editable transfer curve.
Colour Management system:	Photoshop separation table at Mac Tektronix CMS at printer
CMM in use:	Tektronix CMM Photoshop built-in (not ICC)

Other applications and hardware in use:

Scanning:	Itek 320-1 Eskoscan 2450 Agfa Horizon Agfa T2000
Image editing:	Adobe Photoshop 5.05 Radius Pressview monitors (monitors are calibrated on a daily basis by using a Knoll Gamma Tool).
Page assembly:	Good News by Tera. Advertisements are generated in QuarkXPress 3.32 and integrated in Good News as EPS files.
Illustrations:	Adobe Illustrator 8. No CM at this stage.
Image server:	Editorial image base is Photogrid by SCC
OPI:	Hydra
Output:	Editorial proofs are made on Canon 700 Advertising proofs are made on Tektronix Phaser 780 RIPs at editorial site are ECRM. Image setters at the printsite are ECRM Knockout.
Soft proofing	Harland Simon software running on Windows NT.