



**Ghent PDF  
Workgroup**

# **Ghent Output Suite –v 3.0**

# Introduction

The Ghent Output Suite was created for users who process PDF files in the graphic arts industry, as an aid to determine whether their workflows are behaving as expected. We believe these patches can be used by end users of graphic arts equipment as well as developers of applications that handle PDF files.

The suite is distributed as a series of PDF patches. Each patch is numbered and contains several related tests. The patches can be used on their own but the intention of the suite is that the patches are grouped together (as PDF files would normally be grouped together within a workflow). The reason for this is that it is likely that some problems will only appear when certain patches are processed together. It is also likely that application settings and RIP settings can have a significant effect on the results.

All the issues tested by these patches are real world issues that can be found in a production environment; however, these patches do not reflect normal production files and the results may in some cases appear extreme. They have been carefully constructed to allow effects that are normally subtle to be seen clearly and unambiguously and this should be taken into account when evaluating the results of any tests based on these patches. On a technical note, all patches conform to either the PDF/X-1a or PDF/X-3 ISO standard; they do not always conform to the Ghent PDF Workgroup specifications.

It is likely that this suite will be updated, new patches will be added, and existing patches will be revised. For this reason the documentation for each individual patch is distributed along with the patch. It is advised to check regularly for updates to the suite on the Ghent PDF Workgroup website at <http://www.gwg.org>.

# Version 3.0 Release Notes

In version 3.0 we have made some minor adjustments to some of the existing patches and documentation in order to make them clearer and easier to understand. We have also introduced four new patches.

## Patch withdrawals:

Patch 12.1 —Black Overprint/Knockout has been removed. It was decided that although the tests carried out by this patch were valid, the results were too difficult to judge or interpret and could lead to confusion.

## Patch updates:

Patch 10.0 is re-released as two patches. It was felt that there were too many tests incorporated in the original patch and for this reason 10.0 has been withdrawn and it has been replaced by two new patches 10.1 and 10.2.

## New Patches:

The following new patches have been added in version 3.0:

- |            |                       |
|------------|-----------------------|
| Patch 4.1  | —White Overprint Mode |
| Patch 13.0 | —Source Profile       |
| Patch 13.1 | —Rendering Intent     |
| Patch 13.2 | —ICC based OverPrint  |

# Contributors

This project has been put together by the members of the Ghent PDF Workgroup, and specifically the members of the process control sub-committee. It must also be acknowledged that the original idea came from the Kensington Suite, which was a similar project started by industry experts . We thank the originators of the Kensington Suite for letting us take their idea one step further.

A special thanks needs to be given to the following individuals for taking time out of their busy schedules to offer their hard-earned expertise, as well as for their determination in coming up with ideas, developing and then testing them.

Martin Bailey	Global Graphics, United Kingdom
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Stephan Jaeggi & Andy Psarianos  
Process Control Sub-committee Chairs

# Using the Suite

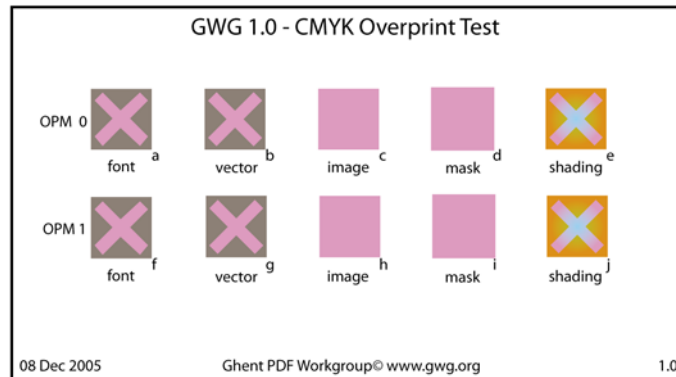
## Patch Basics

The suite is distributed as a series of patches each containing related tests. In each case the patches are distributed with appropriate documentation. The patches have been constructed in such a way as to show clearly in a graphic fashion when a test within a patch has been rendered incorrectly.

The patches use two methods of showing appropriate or inappropriate behavior.

### Method 1

A clear X indicates the improper handling of a file



**Example 1a:** Tests a, b, e, f, g, j have failed because a clear X is visible, while tests c, d, h, i have all passed because there is no clearly visible X.

Method 2

A comparison to a rendered object

GWG 9.0 - Font Support		
<b>Type1 PostScript:</b>	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	(NewCenturySchlbk Italic)
Expected result:	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	(NewCenturySchlbk Italic)
<b>TrueType:</b>	<i>ä ö ü Ä Ö Ü ä ä ä f f l © ® @ Ð Ĳ Æ Œ ø æ f ÿ þ % œ þ ½ ð</i>	(BookAntiqua-BoldItalic)
Expected result:	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	(BookAntiqua-BoldItalic)
<b>CID (Type1):</b>	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	(WarnockPro-BoldIt)
Expected result:	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	(WarnockPro-BoldIt)
<b>CID (TrueType):</b>	<i>fl @ ſi E T H a &gt; l Ć Ĥ Œ ø æ f o L þ</i>	
Expected result:	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	(PalatinoLinotype BoldItalic)
<b>Multiple Master:</b>	<i>dit is een multiple master ex ponto non dit is een multiple master ex ponto non</i>	(ExPontoMM)
Expected result:	<i>dit is een multiple master ex ponto non dit is een multiple master ex ponto non</i>	(ExPontoMM)
<b>Type 3 Vector:</b>	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð\$ſcABCD...XYZ (T1 / Garamond Bold)</i>	
Expected result:	<i>äöüÄÖÜäääffl©®@ÐĲÆŒøæfÿþ%œþ½ð</i>	
<b>Type 3 Bitmap:</b>	<i>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf</i>	(T10)
Expected result:	<i>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf</i>	(T10)
03 Nov 2005 Ghent PDF Workgroup © www.gwg.org		9.0

**Example 1b:** In the above example the results of each line of text should match the “expected result” line directly below it which has been rendered previously. In this example, **TrueType**, **CID(TrueType)**, and **Type 3 Vector** show errors and do not match the expected result.

Using the patches

The README files distributed with the patches describe the appropriate use of the patches. They also include information about the individual tests within the patches and explain how to interpret the results. In each case it is strongly recommended that the user of a patch refer to the information within the README file, especially when evaluating results. The patches are not normal production files, however each of the tests within the files represent a real world issue. The patches have been constructed to be used together, and some faults may only appear when the patches are amalgamated or grouped together in an application. The patches are all 90 mm x 50 mm and will fit eight-up on an A4 or US Letter sheet. Re-sizing of the patches during testing is allowed and should not alter the behavior of the patches.

## How to use the patches to test your workflow

In order to understand what your particular workflow may be doing to PDF files, these patches are to be used as if they were normal elements in your day-to-day production. Below are examples of two workflows that could be tested using the Ghent Output Suite.

### Example 1

#### -A publisher is creating composite pages from incoming advertising

1. A publisher receives fractional advertising as PDF files, verifies the files and adapts them (e.g. to a printing condition) if necessary.
2. These files are grouped together to make magazine pages using a page layout application.
3. Composite pages are exported to PDF files sometimes through a direct export facility and sometimes via postscript and then distillation.
4. The PDF file is then evaluated on screen for content.
5. A hard copy proof is made on an office laser printer and is sent to the printer along with the PDF file.

In workflow example 1 there are several areas where things could go wrong. It could be that the layout application is not displaying the patches correctly on the screen, or that the output condition has not been accounted for. It is also possible that when the composite file is created through direct export or through postscript and distillation some issues may arise. It is even likely that there are different results between direct export and postscript/distil. The content check on screen could be rendering the composite page differently than the hard proof which is made afterwards.

## Example 2

### -A printer is supplied single page PDF files to print

1. A printer receives single page PDF files and verifies them.
2. PDF files are proofed on screen for content.
3. The PDF files are grouped together in an imposition software application and exported to a composite PDF file.
4. The composite PDF files are proofed to the client using a soft proofing device.
5. The composite PDF files are ripped and output to plates for printing.

In workflow example 2 there are several areas where things could go wrong. When the PDF files are evaluated on screen it is possible that the viewing application is not rendering correctly. The content of PDF files could also change if the imposition application is not handling the content correctly, or is not accounting for the output printing condition. It is also possible that the soft proofing device is rendering different results than the RIP driving the plate-making device.

Example 1 and Example 2 are both typical workflows in which PDF files are used. They seem like straight forward setups but things can go wrong at various stages.

In both these cases the patches can be used as if they were incoming files. They can be assembled together to create the composite pages. It will become evident if the steps in the workflow are adversely affecting the files, or if the proofing steps are accurately rendering the files.

It is unlikely that your workflow is exactly the same as these two examples, but it will most likely be similar in some respects. These patches are tools that you can use to evaluate your current workflow, and if you run them through your workflow they should point out potentially problematic areas.



## Patch 1.0 — CMYK Overprint

### Intent

This patch is designed to highlight certain problems that can arise when rendering CMYK objects that are set to overprint other CMYK objects. This patch uses CMYK only.

### Testing guidelines

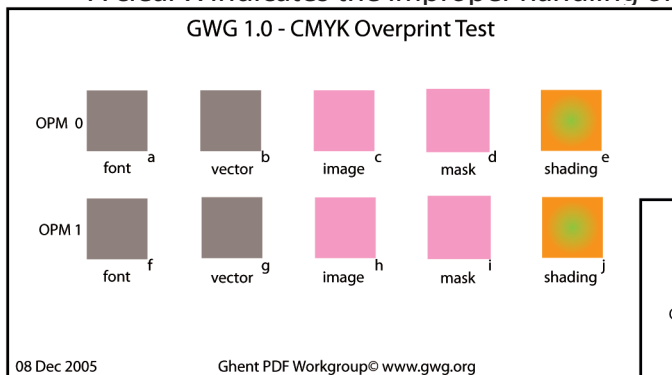
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

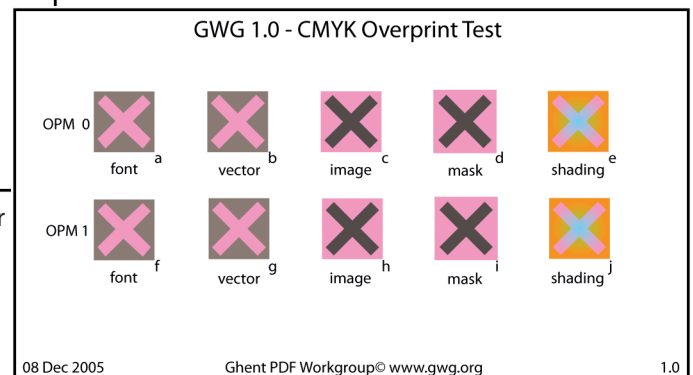
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file



Correct rendering of the patch, all tests passed. No clear X is showing.



Incorrect rendering of the patch, all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

### OP Mode 0

- a) A test using a Magenta text object defined as a single channel Magenta and is overprinting a CMYK object of 50C,0M,50Y,0K using op mode 0. If an X shows, it means that overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- b) A test using a Magenta vector object defined as a single channel Magenta and is overprinting a CMYK object of 50C,0M,50Y,0K using op mode 0. If an X shows, it means that overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- c) A test using a CMYK image of 50% Magenta set to overprint CMYK object shaped as an X of color 50C,0M,50Y,0K with op mode 0. Images or image masks in CMYK should never overprint CMYK objects. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- d) A test using a CMYK image Mask of 50% Magenta set to overprint CMYK object shaped as an X of color 50C,0M,50Y,0K with op mode 0. Images or image masks in CMYK should never overprint CMYK objects. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- e) A test using a DeviceN duotone gradient including Cyan and Magenta set to overprint a solid yellow object in overprint mode 0. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.

### OP Mode 1

- f) A test using a Magenta text object defined as a single channel Magenta and is overprinting a CMYK object of 50C,0M,50Y,0K using op mode 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- g) A test using a Magenta vector object defined as a single channel Magenta and is overprinting a CMYK object of 50C,0M,50Y,0K using op mode 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.

- h) A test using a CMYK image of 50% Magenta set to overprint CMYK object shaped as an X of color 50C,0M,50Y,0K with op mode 0. Images or image masks in CMYK should never overprint CMYK objects. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- i) A test using a CMYK image Mask of 50% Magenta set to overprint CMYK object shaped as an X of color 50C,0M,50Y,0K with op mode 0. Images or image masks in CMYK should never overprint CMYK objects. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- j) A test using a DeviceN duotone gradient including Cyan and Magenta set to overprint a solid yellow object in overprint mode 1. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.

## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues. It is, however, possible that the amalgamation of this patch with other patches may very well lead to problems. For example, the amalgamation of this patch with patch 11 (default color space) using a layout application could very well point out some problems with the layout application that would otherwise go unnoticed.

## Patch contributors

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Goosen Rindjers  
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## Patch creation date

07 Nov 2005

## Patch 1.1 — CMYK Overprint Mode

### Intent

This patch is designed to identify clearly how applications and workflows handle Overprint Mode.

### Testing guidelines

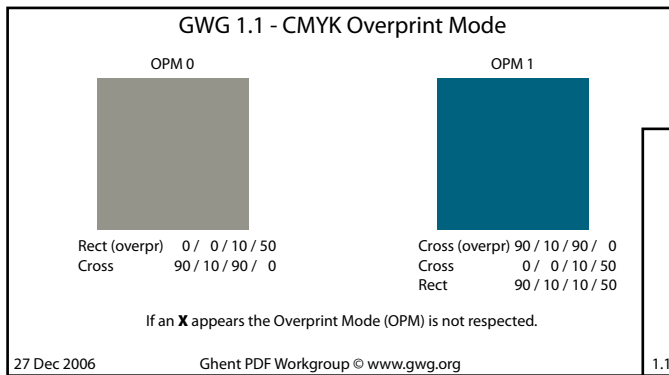
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

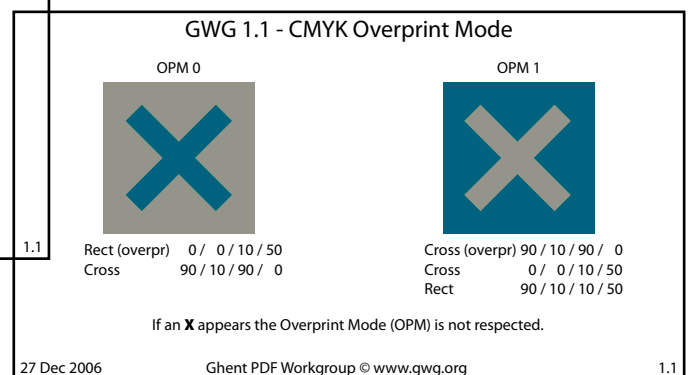
### Method of evaluation

#### Method 1

A clear **X** indicates the improper handling of a file.



Correct rendering of the patch, all tests passed. No clear **X** is showing.



Incorrect rendering of the patch, all tests have failed. Each **X** indicates an incorrectly rendered test. (Usually you will get only one **X** if an error occurs.)

## Description of results

The Overprint Mode specifies if a CMYK channel with 0% does overprint an other CMYK color underneath (OPM = 1) or does knock out (OPM = 0) . If an **X** appears the settings has been changed by the workflow or was not respected by the RIP.

## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues.

## Patch contributors

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## Patch creation date

27 December 2006

## Patch 2.0 - Spot and CMYK Overprint

### Intent

This patch is designed to highlight certain problems that can arise when rendering Spot color objects that are set to overprint CMYK objects. This patch uses the Spot color GWG Green.

### Testing guidelines

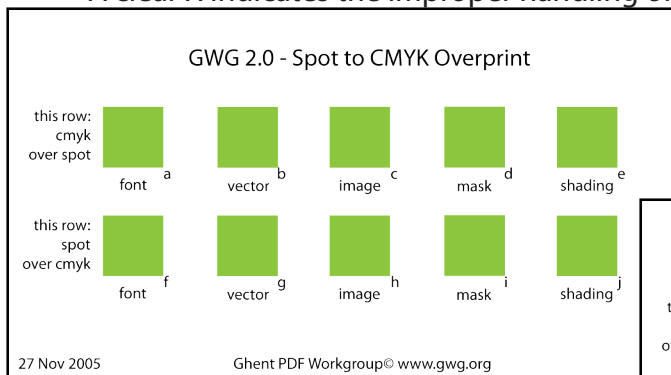
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

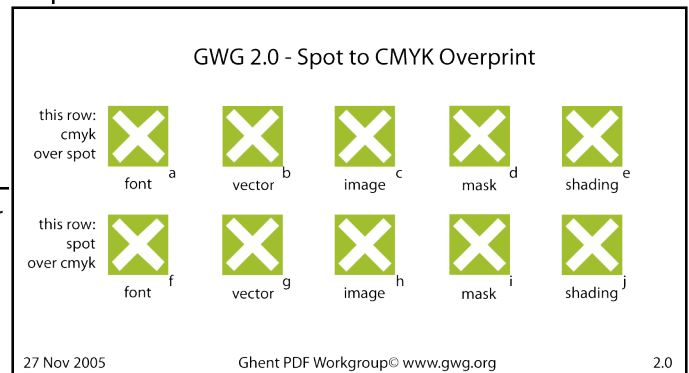
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file



Correct rendering of the patch, all tests passed. No clear X is showing.



Incorrect rendering of the patch, all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

- a) A font object colored in CMYK is overprinting a Spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- b) A vector object colored in CMYK is overprinting a Spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- c) An image object colored in CMYK is overprinting a Spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- d) An image mask object colored in CMYK is overprinting a Spot color object. If an X shows it means that overprints have been wrongly applied or some other rendering problem has occurred.
- e) A smooth shading object colored in CMYK is overprinting a Spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- f) A font object colored in the Spot color GWG Green is overprinting a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- g) A vector object colored in the Spot color GWG Green is overprinting a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- f) An Image object colored in the Spot color GWG Green is overprinting a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- f) An Image mask object colored in the Spot color GWG Green is overprinting a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- f) A smooth shading object colored in the Spot color GWG Green is overprinting a CMYK object. If an X shows it means that overprints have been wrongly applied or some other rendering problem has occurred.

## Notes

A faint 'X' in slightly darker green may show in all of the tests; this is acceptable behavior in this patch. Only a clearly visible X indicates an incorrectly rendered patch. Please see example on the first page of this README file.

This patch appears to be a simple patch, and should be rendered without fail on its own. It is, however, possible that the amalgamation of this patch with other patches may very well lead to problems. There are several cases in which objects set to overprint using Spot colors can prove to create some advanced problems. For example, If you simulate Spot colors for proofing or commonly convert Spot colors to CMYK this patch can be used to highlight potential errors in your working practices. Use this patch along with patch 10 —Spot to CMYK conversions for testing Spot color simulation.

## Patch contributors

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Roto Smeets  
Netherlands

David Zwang  
Zwang & Company  
United States

## Patch creation date

27 Nov 2005



## Patch 3.0 — Gray Overprint

### Intent

This patch is designed to highlight certain problems that can arise when rendering Gray objects that are set to overprint other objects. This patch uses CMYK and Spot color GWG Green.

### Testing guidelines

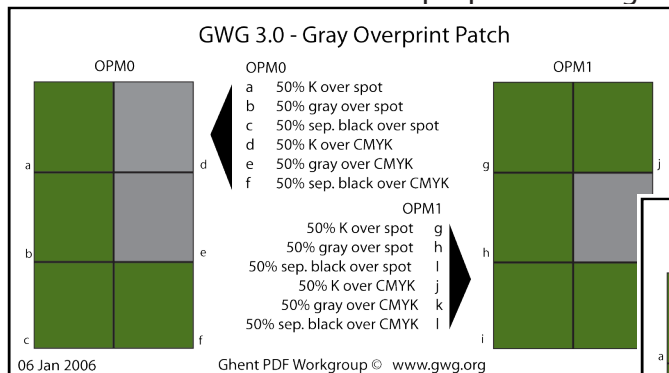
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

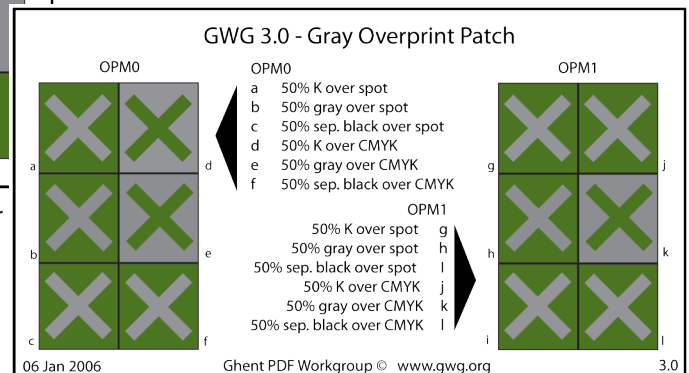
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file



Correct rendering of the patch: all tests passed. No clear X is showing.



Incorrect rendering of the patch: all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

### OPM Mode 0

- a) A 50%K vector object is set to overprint a multi-spot colored object using OPM 0. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- b) A 50% Gray vector object is set to overprint a multi-spot colored object using OPM 0. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- c) A 50% Spot color black vector object is set to overprint a multi-spot colored object using OPM 0. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- d) A 50% K vector object is set to overprint a CMYK object using OPM 0. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- e) A 50% Gray vector object is set to overprint a Gray object using OPM 0. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- f) A 50% spot color black is set to overprint a CMYK object using OPM 0. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.

### OPM Mode 1

- g) A 50%K vector object is set to overprint a multi-spot colored object using OPM 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- h) A 50% Gray vector object is set to overprint a multi-spot colored object using OPM 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- i) A 50% Spot color black vector object is set to overprint a multi-spot colored object using OPM 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- j) A 50% K vector object is set to overprint a CMYK object using OPM 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.

- k) A 50% Gray vector object is set to overprint a Gray object using OPM 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.
- l) A 50% spot color black is set to overprint a CMYK object using OPM 1. If an X shows, the overprints have not been honored or rendered correctly or some other rendering problem has occurred.

## Notes

There are several ways of describing black within a PDF file: K from CMYK, Gray, and separation Black. The expected overprint behavior differs depending on color spaces and overprint modes. This patch includes examples of cases where objects would be expected to overprint objects underneath as well as cases where the proper behavior would be to knock out the object below. It is also possible that the amalgamation of this patch with other patches may very well lead to problems. For example, the amalgamation of this patch with patch 11 (default color space), using a layout application could very well point out some problems with the application that would otherwise go unnoticed.

## Patch contributors

Peter Claes  
Sagamgraphic  
Belgium

## Patch creation date

06 Jan 2006

## Patch 3.1 — Gray Image Overprint

### Intent

This patch is designed to identify clearly how applications and workflows handle overprinting of grayscale images (e.g. created during flattening of drop shadows).

### Testing guidelines

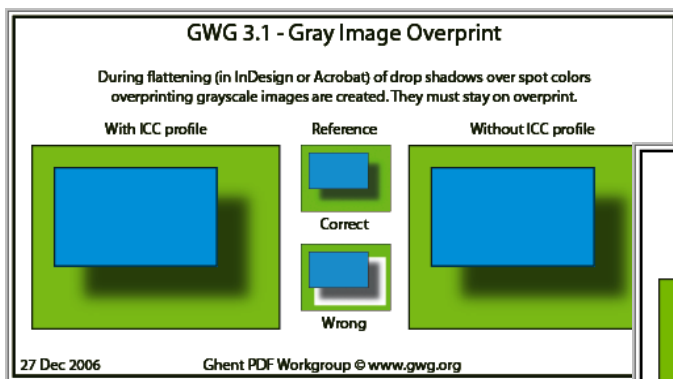
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

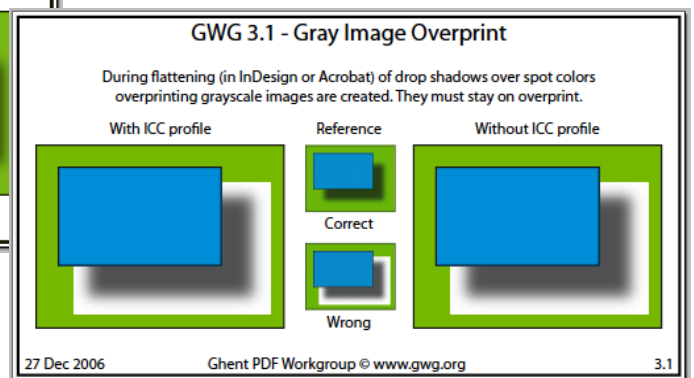
### Method of evaluation

#### Method 1

If a white rectangle appears (see reference) then overprinting of the grayscale image(s) was turned off.



Correct rendering of the patch, all tests passed.  
No white rectangles are visible.



Incorrect rendering of the patch, all tests have failed.  
White rectangles are visible.

## Description of results

During flattening (e.g. in InDesign or Acrobat) of drop shadows over spot colors overprinting grayscale images are created. In order to achieve the desired appearance these images must stay on overprint. However a lot of output workflows change the overprint behaviour of these objects.

## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues.

## Patch contributors

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## Patch creation date

27 December 2006

## Patch 4.0.1 — White Overprint

### Intent

This patch is designed to highlight certain problems that can arise when rendering White objects that are set to overprint other objects. This patch uses CMYK and spot color GWG Green.

### Testing guidelines

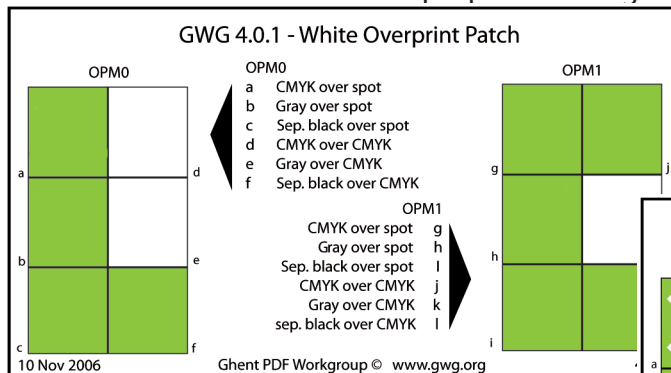
The files may be used in two ways:

- A single file may be used to test a specific step in a workflow, such as a RIP.
- The files together may be used to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

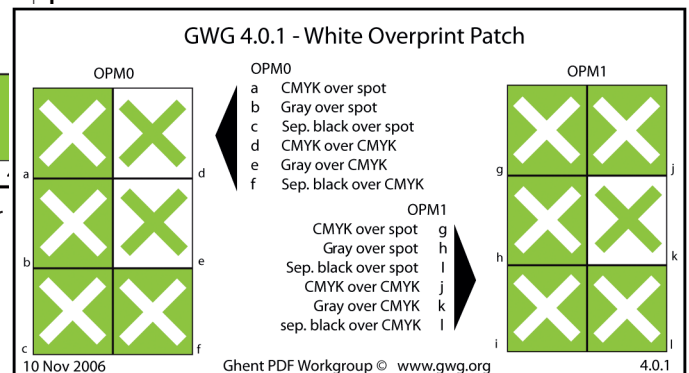
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file



Correct rendering of the patch, all tests passed. No clear X is showing.



Incorrect rendering of the patch, all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

- a) A CMYK vector object is set to overprint a spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- b) A Gray vector object is set to overprint a spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- c) A separation black vector object is set to overprint a spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- d) A CMYK vector object is set to overprint a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- e) A Gray vector object is set to overprint a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- f) A separation black vector object is set to overprint a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- g) A CMYK vector object is set to overprint a spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- h) A Gray vector object is set to overprint a spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- i) A separation black vector object is set to overprint a spot color object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- j) A 0% CMYK vector object is set to overprint a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.

- k) A Gray vector object is set to overprint a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.
- l) A separation black vector object is set to overprint a CMYK object. If an X shows, it means that overprints have been wrongly applied or some other rendering problem has occurred.

## Notes

Patch 4.0.1 replaces previously released version 4.0. Objects that are set to A 0% and are set to overprint disappear in most cases, but not all cases. All the white objects on this patch are set to overprint, but the expected behavior differs depending on different color spaces and overprint modes. This patch includes examples of cases where objects would be expected to disappear as well as cases where the proper behavior would be to knock out the object below. It is possible that the amalgamation of this patch with other patches may very well lead to problems. For example, the amalgamation of this patch with patch 11 (default color space) using a layout application could very well point out some problems with the application that would otherwise go unnoticed.

## Patch contributors

Peter Claes  
Sagamgraphic  
Belgium

## Patch creation date

10 Nov 2006



## Patch 4.1 — White Overprint Mode

### Intent

The intention of this patch is to identify correct or improper rendering of files with white elements not defined in CMYK set to overprint or almost white set to overprint. This patch uses CMYK and spot color GWG Green.

### Testing guidelines

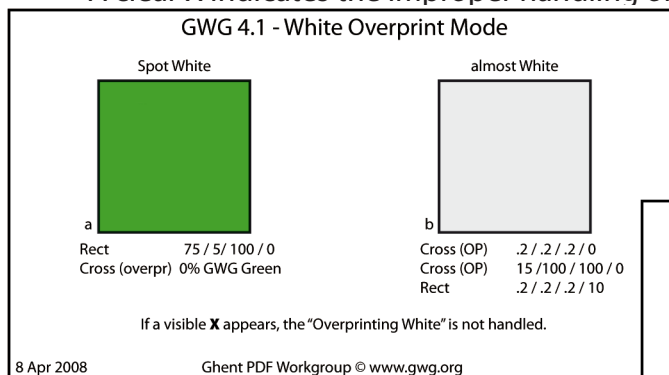
The files may be used in two ways:

- A single file may be used to test a specific step in a workflow, such as a RIP.
- The files together may be used to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

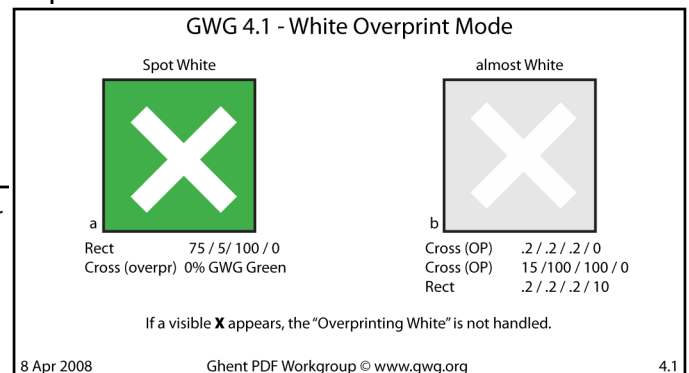
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file



Correct rendering of the patch, all tests passed. No clear X is showing.



Incorrect rendering of the patch, all tests have failed. Each X indicates an incorrectly rendered test. Note that the X in box b could also be red, see notes on next page for details.

## Description of tests

If an X clearly shows, the patch has been rendered incorrectly - mostly because the overprint of a white element was set to knockout.

- a) A white vector element defined in Separation "GWG Green" with overprint on placed on top of a CMYK element.
- b) An CMYK element defined almost white (0.2% in each process color channel except black) set to overprint placed on top of a red cross and a vector element, both defined in DeviceCMYK.

If a PDF/X conforming workflow performs the rendering, the patch to show up as a green and a gray rectangle.

Possible wrong output:

- white X in patch a:  
Overprint was deactivated or not honored.
- white X in patch a:  
The spot color object was converted to CMYK, Overprint stayed on, but OPM was not set to 1.
- red X in patch b:  
Due to rounding errors the 0.2% colorant are treated as 0% leading to an overprinting white element
- white X in patch b:  
The overprinting got deactivated or not honored.

## Notes

Patch 4.1 has been introduced to go along with Patch 4.0.1 It test for known problematic cases that do not appear in patch 4.0.1 The behavior of the objects included in this patch can easily be modified when doing conversion or amalgamating this patch with other patches. Overprint behavior changes depending on different color spaces and overprint modes. An object that is “nearly white” (0.02% in this instance) could be interpreted as white by some applications as the numbers get rounded by the application, therefore changing the overprint behavior. This patch includes examples of cases where objects would be expected to disappear as well as cases where the proper behavior would be to knock out the object below. It is possible that the amalgamation of this patch with other patches may very well lead to problems. For example, the amalgamation of this patch with patch 11 (default color space) using a layout application could very well point out some problems with the application that would otherwise go unnoticed.

## Patch contributors

Peter Kleinheider  
Callas Software GMBH  
Austria

## Patch creation date

08 April 2008

## Patch 5.0 — Font Substitution

### Intent

This patch is designed to highlight the substitution of a font within a workflow.  
This patch uses CMYK only.

### Testing guidelines

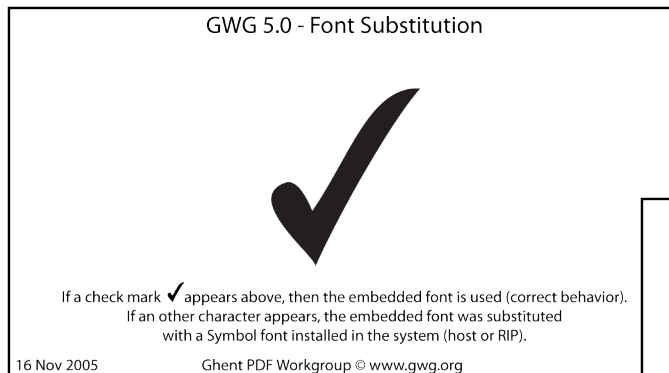
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

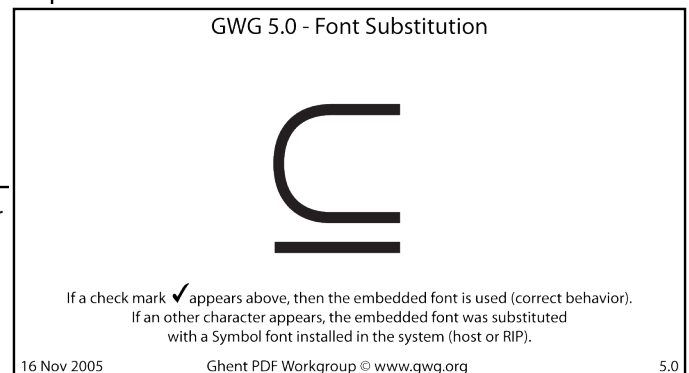
### Method of evaluation

#### Method 2

A visual comparison to a reference within the patch.



Correct rendering of the patch, all tests passed. No clear X is showing.



Incorrect rendering of the patch, Depending on what kind of Symbol font is installed in your system, another character may appear. Anything other than ✓ is wrong.

## Description of tests

The purpose of this patch is to test whether the embedded fonts are really used in the output of the PDF or if the font has been substituted by the fonts installed on the system (computer, workflow system, RIP).

All the characters of the Symbol font have been exchanged with a check mark. This manipulated font has been embedded in the PDF file and used to produce the main check mark within the patch from what would normally be another character within the Symbol font. The expected behavior would be for the embedded (manipulated) font to be maintained throughout the handling of the PDF file and the glyph to remain as a check mark.

If the check mark appears in the output, the embedded (manipulated) font was used and is the correct and anticipated behavior.

If any other character appears, then the embedded Symbol (manipulated) font has been substituted by a version of Symbol installed on the host computer, the workflow system or the RIP. This is incorrect behavior.

This patch can also adversely affect the content within other files if it is amalgamated with a file that uses another version of the Symbol font. It is possible that in the amalgamation, the manipulated Symbol font gets used not only in the patch, but also in the file with which it is being amalgamated; therefore all the characters would be substituted with a check mark. This would be incorrect behavior.

## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues. It is possible that the amalgamation of this patch with other files may very well lead to problems. For example, the amalgamation of this patch with subject matter which contains a different version of a font named Symbol could cause problems that would otherwise go unnoticed.

## Patch contributors

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Dov Isaacs  
Adobe Systems Incorporated,  
United States  
<http://www.adobe.com>

## Patch creation date

16 Nov 2005

## Patch 5.1 and 5.2 — Font Substitution

### Intent

These patches are designed to highlight the substitution of characters within a document that has more than one incident of a font imported within it. This patch uses CMYK only.

### Testing guidelines

Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will amalgamate multiple files together, e.g. for partial page advertisements in a magazine.

### Method of evaluation

#### Method 2

A visual comparison to a reference within the patch.

GWG 5.1 - Font subset and substitution		
	Placed EPS-file n°1 (VVLNKX+Myriad-Roman)	Placed EPS-file n°2 (VVLNKX+Myriad-Roman)
subsetting font	12345	45678
expected result	12345	45678
<p>- If all characters are correct and appear in the right order, the subset fonts have been processed correctly.</p> <p>- If some characters do not appear or display in the wrong order, incorrect handling of subset fonts has occurred.</p>		
15 Dec 2006      Ghent PDF Workgroup © www.gwg.org		

Correct rendering of the patch, all tests passed. All fonts have rendered as per the examples within the file.

GWG 5.1 - Font subset and substitution		
	Placed EPS-file n°1 (VVLNKX+Myriad-Roman)	Placed EPS-file n°2 (VVLNKX+Myriad-Roman)
subsetting font	12345	12678
expected result	12345	45678
<p>- If all characters are correct and appear in the right order, the subset fonts have been processed correctly.</p> <p>- If some characters do not appear or display in the wrong order, incorrect handling of subset fonts has occurred.</p>		
15 Dec 2006      Ghent PDF Workgroup © www.gwg.org      5.1		

Incorrect rendering of the patch, the glyphs 4 and 5 have been substituted with the glyphs of 1 and 2 on the right hand side.

## Description of tests

Patches 5.1 and 5.2 have been created to clearly show when a PDF handling application has difficulty processing multiple instances of a font within the same PDF document. Both fonts have glyphs which are present in both font subsets but occupy different locations in the font tables. This scenario can be the result of applications which amalgamate multiple documents with different font subsets and exports one resulting PDF document.

If the PDF files are not handled correctly the likely outcome could be either; glyphs being substituted with the wrong glyphs; or blank spaces appearing where there are conflicts.

For detailed information on the contents of these patches please refer to the documents called **051\_Font\_report.pdf** and **052\_Font\_report.pdf**. Both these detailed reports have been created using PDFlib FontReporter

## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues. It is possible that the amalgamation of this patch with other files may very well lead to problems. For example, the amalgamation of this patch with subject matter which contains other instances of a font named Myriad Roman could cause problems that would otherwise go unnoticed.

## Patch contributors

Didier Haazen  
Flemish Innovation Center for Graphic Communication (VIGC)  
Belgium  
<http://www.vigc.org/>

## Patch creation date

15 Dec 2006



## Patch 6.0 & 6.1 — Shadings

### Intent

These patches are designed to test the usage of shadings within workflows. These patches use CMYK only.

### Testing guidelines

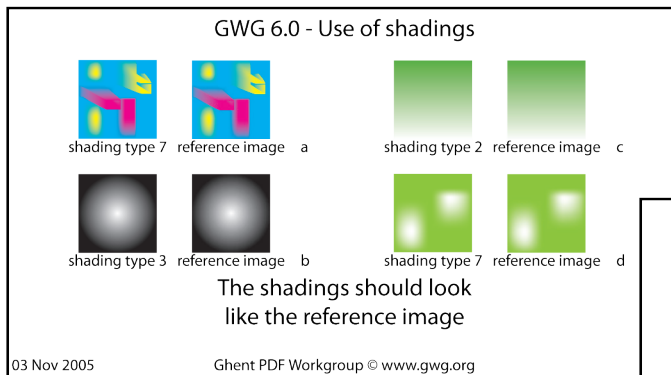
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

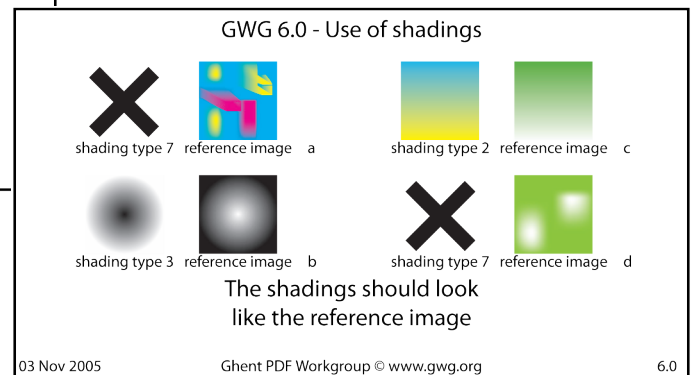
### Method of evaluation

#### Method 2

A visual comparison to a reference within the patch



Correct rendering of the patch: all tests passed. All tests look the same as the reference image.



Incorrect rendering of the patch all tests have failed. In tests a and d the shadings did not render at all. In tests b and c, the shadings rendered differently than the reference images.

## Description of tests

These patches are designed to test whether or not your RIP/workflow supports shadings and can reproduce them properly. The patches only contain shadings created with widely-used applications. None of the shadings have been produced artificially i.e. developed in PostScript.

In each patch you will find four different shadings. Each shading mentions the shading type and has an image representation next to it. You can compare the shading with the image to determine how well your workflow supports shadings. When doing this, please keep in mind that the image is a screenshot of the shading which will mean that the colors and gradation can be slightly off.

If your workflow does not support shadings at all, the shading will be missing and you will see an 'x' instead of the shading.

## Notes

Patch 6.0 uses advanced shading types while patch 6.1 is more basic. All graphic arts equipment should be able to handle these patches without any issues.

## Patch contributors

Andy DenTandt  
Enfocus Software,  
Belgium

Eli Cloots  
Gradual Software  
Belgium

## Patches creation date

03 Nov 2005

## Patch 7.0, 7.1, and 7.2 — Output Intents

### Intent

These patches are designed to clearly identify how applications and workflows handle the output intents of PDF/X files. These patches do not use spot colours.

### Testing guidelines

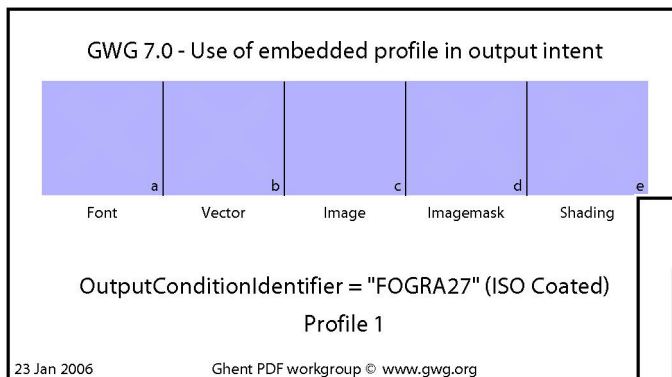
The files may be used in two ways:

- A single file may be used to test a specific step in a workflow, such as a RIP.
- The files together may be used to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

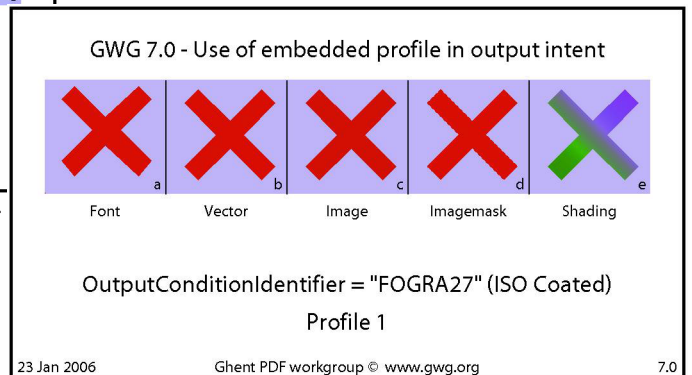
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file



Correct rendering of the patch, all tests passed. No clear X is showing.



Incorrect rendering of the patch, all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

Every PDF/X file includes a structure called an “output intent” that describes the printing condition that it was prepared for. The concept of a printing condition includes aspects such as print technology (sheet-fed or web-fed offset, flexo, gravure, screen-printing, digital press, etc), as well as the substrate being printed on (paper type, etc), and the TVI, or dot gain, expected. “ISO coated” or “SWOP (CGATS TR 001)” are commonly used printing conditions.

Amongst other things, the output intent includes an unambiguously defined name for the printing condition, and may include an embedded ICC profile that describes how the job would print on a press matching the intended printing condition. The profile must be present in a PDF/X-3 file that includes any device independent colour data.

In a PDF/X-1a exchange the output intent is best used in pre-flight: to determine whether a file has been prepared for the printing condition that it will be printed under. If the output intent does not match the press setup, a print service provider or publisher might be expected to contact the supplier of the file to discuss the possibility that it may not print well. If an ICC profile is supplied it may also be used for proofing the file.

In a PDF/X-3 exchange the output intent may be used in pre-flight in the same way, but if the file contains any device independent colour data, the profile should be used in converting the colour into the CMYK colour space of the press. This is because the supplied profile includes instructions for the conversion of device independent colour to CMYK, as well as a description of the resulting CMYK itself. If a different profile is used for output then the tone-scale and gamut compression, black generation etc that were approved by the sender of the file in their own pre-transmission proof will be discarded.

In many cases the differences arising from use of the wrong profile will be subtle, and difficult to see. There may, however, be occasions where the file creator has explicitly set up a file to request specific processing, for example, a very long, or very short black (high GCR or low UCR) to change the appearance of a near-neutral or high-key image. In these cases it would be best to either honour the creator’s wishes, or at least to discuss them before printing.

The three sample files presented here are all PDF/X-3 files containing device independent data (the five crosses on each patch). The embedded profiles are deliberately somewhat unusual to make it as easy as possible to determine whether they are being used or not. If any crosses appear obviously in the patches, or if the patches are printed or displayed in red then the workflow that you are using to aggregate and print them is not using the embedded profiles correctly.

The three test patches use different output intents:

- 7.0 – Marked as having been prepared for the standard printing condition for the rest of the Ghent output suite (FOGRA27, also known as ISO Coated)
- 7.1 – Marked as having been prepared for the “GWG Custom” printing condition.
- 7.2 – Marked as having been prepared for FOGRA27, but using a different profile in the output intent to that used in 7.0.

The patches are designed for use in a workflow test to ensure that the individual profile from each PDF/X-3 file is used in rendering that file. As a side-effect they also test that the correct rendering intent is used in each case.

A combination of 7.0 and 7.2 placed as if they were submissions from different sources (e.g. as partial page ads in a magazine workflow) will emulate what might be expected to become a very common situation. In such a workflow the differences between different embedded profiles for the same characterized printing condition might be expected to be relatively small (probably different black generation, or gamut compression). These test files emphasize the differences to make it easier to see whether the files have been processed correctly.

A combination of 7.1 with either 7.0 or 7.2 emulates another situation that may well become common; two files placed within the same print surface, even though they were originally prepared for different characterized printing conditions. There is no clear definition of correct behaviour in this case, although it's a reasonable assumption that most people would expect the embedded output intent profiles to be used.

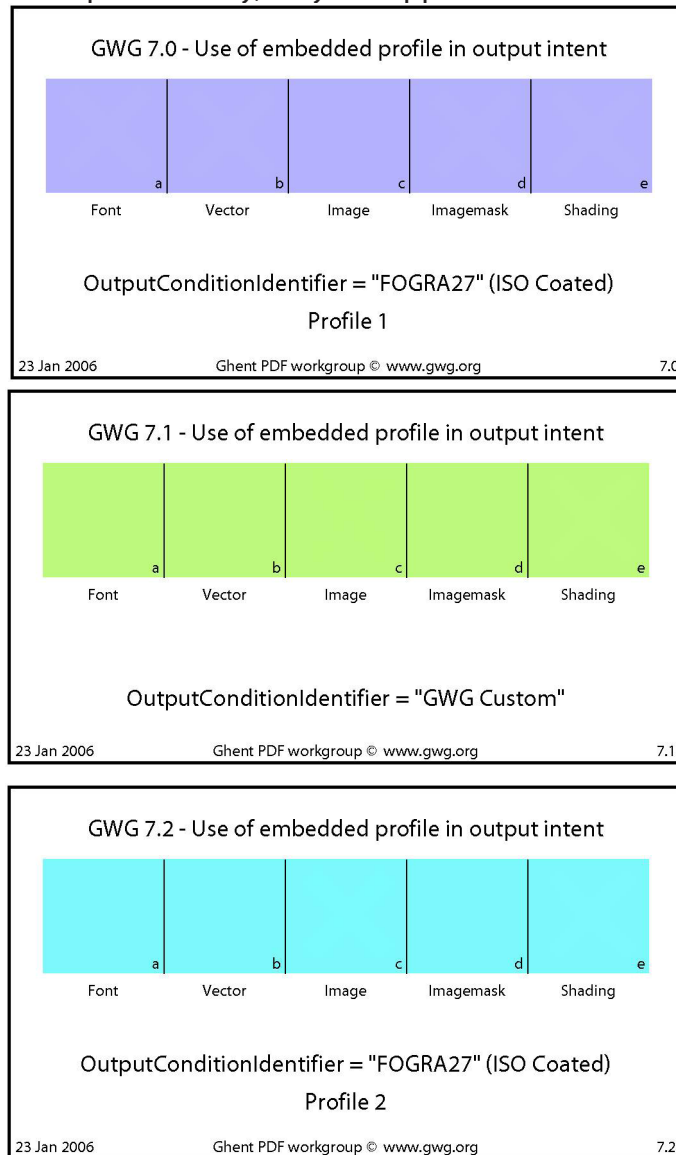
Each patch comprises five crosses, encoded as text, vector graphics, an image, an imagemask and smooth shading. The crosses are defined in a three-colour ICCBased colour space (tagged RGB), and are drawn on top of a rectangle defined in CMYK. All of the crosses should be rendered using the Perceptual rendering intent.

In all cases the ICC profiles embedded in the output intents are deliberately very unusual:

- PCS to device, Colorimetric rendering intent, will convert the colour of all device independent objects to Magenta. Saturation rendering intent will convert them to Yellow. Perceptual will convert to different colours in the three files, to match the colour of the background rectangle.

- The Perceptual and Saturation Device to PCS tags will convert objects to display in red; these would not be used in a normal workflow. Colorimetric Device to PCS tags will provide a transform very similar to that of ISO Coated (FOGRA27), as those would be used in a proofing system to support emulation.

When the files are output correctly, they will appear as:



To read the patches:

- If the background rectangle and the crosses are in red, then the workflow has used the Perceptual or Saturation Device to PCS tags within the embedded ICC profile. This is occasionally done in rather simplistic colour managed displays, and is an incorrect output.

- If one or more crosses are clearly visible against a background that is not red, then the embedded ICC profile has not been used at all. This is an incorrect output.
- If one or more crosses are visible as Magenta or Yellow the embedded ICC profile has been used, but the rendering has been performed using the wrong rendering intent. This is an incorrect output.
- If none of the crosses can be seen, the output is correct.
- If one or more crosses are discernable in a colour similar to that of the background rectangle the colour management engine in use has applied the embedded ICC profile and used the correct rendering intent. The CMM in use, however, produces results slightly different from those in the reference implementations. The more clear the crosses are, the more of a problem this shows; a faintly visible cross should not normally be treated as a sign that the workflow is incorrect.

## Notes

The files are not suitable for use in building a pre-constructed test page, because in doing so the output intent in each file must either be lost, applied (e.g. by conversion of the whole patch to CMYK), or will affect all other patches from which the test page is built. The files can however be amalgamated together in order to test the amalgamating software.

## Patch contributors

Martin Bailey  
Global Graphics Software  
United Kingdom  
<http://www.globalgraphics.com>

## Patch creation date

23 Jan 2006



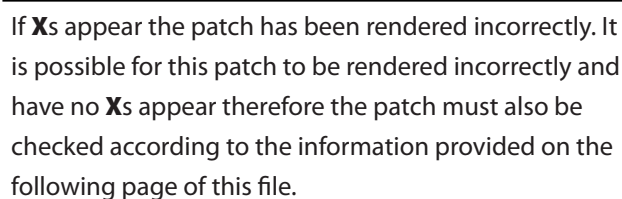
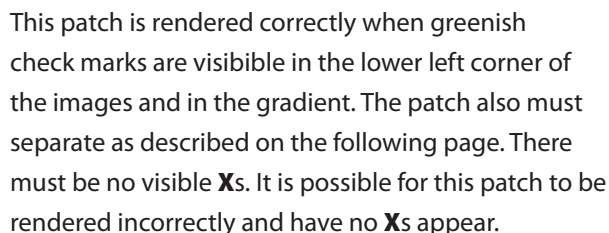
## Intent

## Testing guidelines

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

## Method of evaluation

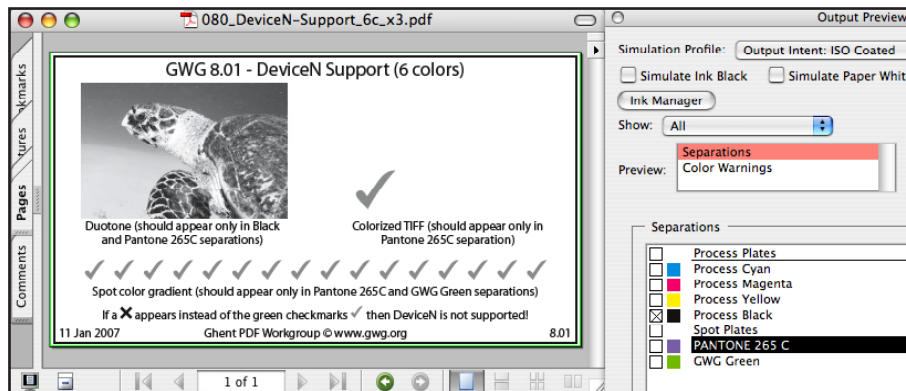
This patch uses more than one method for testing the handling of the content. The output needs to be clearly examined, as described on the following page, in order to determine if it has been rendered correctly.



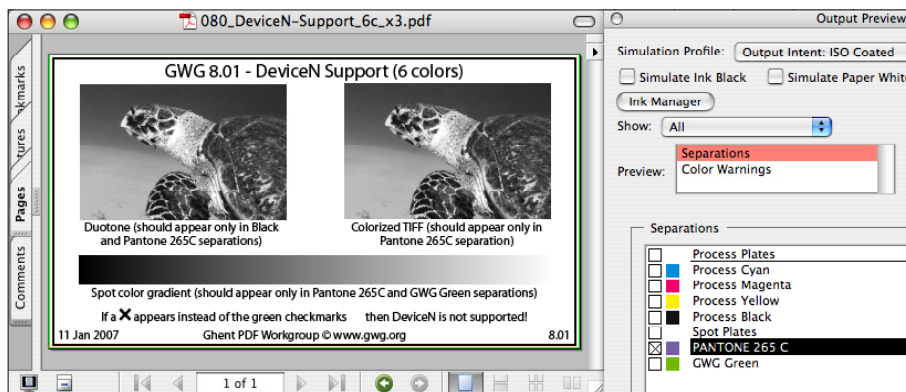
## Description of results

This patch tests the DeviceN capabilities of a workflow. If DeviceN is not handled correctly the colors are converted to CMYK. Instead of the check marks an **X** will appear in the lower left corner of each image and in the gradient.

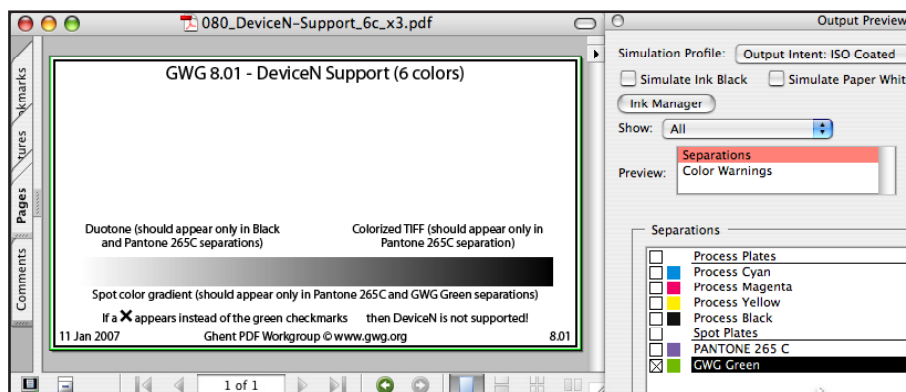
In addition you could inspect the color separations. The objects should appear only in the Black, Pantone 265C and GWG Green separations as indicated in the captions:



Black



Pant. 265C



GWG Green

## Notes

This is a basic patch and all graphic arts equipment which are PostScript Level-3 compatible should be able to handle this patch without any issues.

## Patch contributors

Stephan Jaeggi  
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Switzerland  
sjaeggi@prepress.ch

## Patch creation date

11 January 2007

## Patch 8.1— DeviceN Support (5 colors)

### Intent

This patch is designed to identify clearly how applications and workflows handle DeviceN. This patch uses only one spot color.

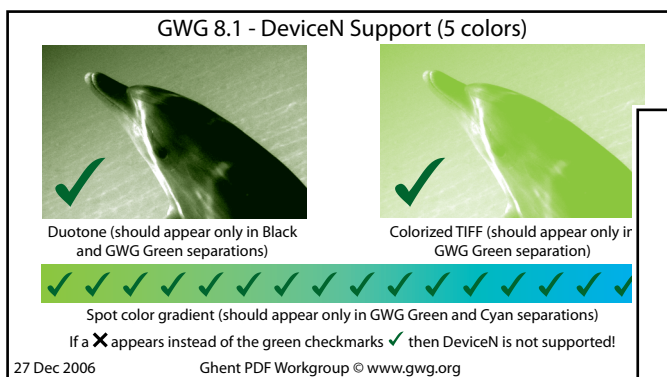
### Testing guidelines

Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

### Method of evaluation

This patch uses more than one method for testing the handling of the content. The output needs to be clearly examined, as described on the following page, in order to determine if it has been rendered correctly.



This patch is rendered correctly when greenish check marks are visible in the lower left corner of the images and in the gradient. The patch also must separate as described on the following page. There must be no visible Xs. It is possible for this patch to be rendered incorrectly and have no Xs appear.

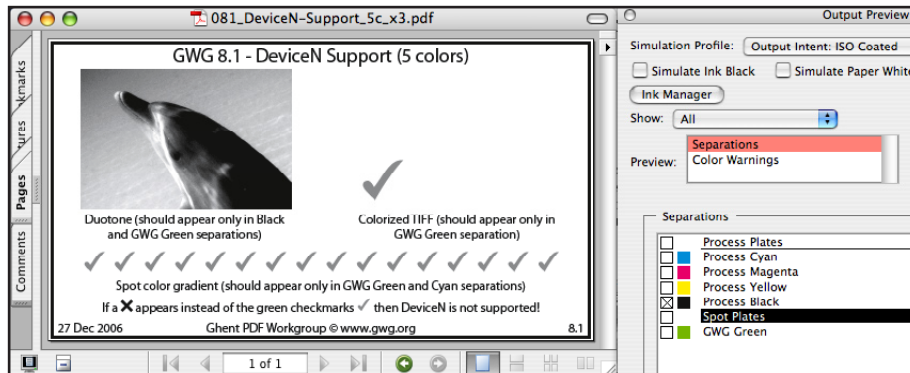


If Xs appear the patch has been rendered incorrectly. It is possible for this patch to be rendered incorrectly and have no Xs appear therefore the patch must also be checked according to the information provided on the following page of this file.

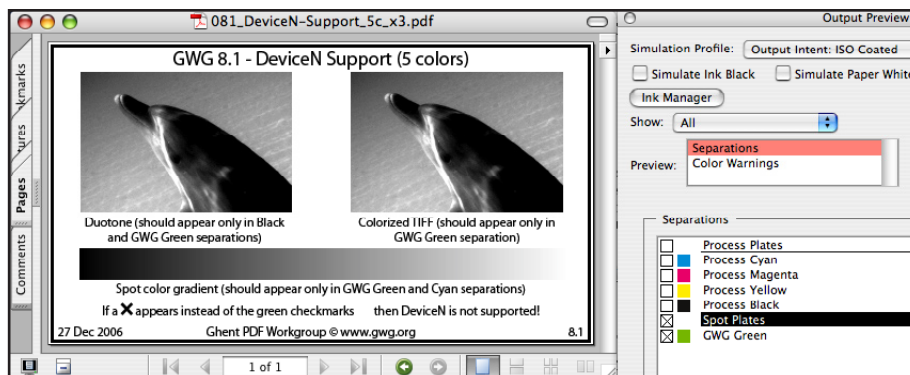
## Description of results

This patch tests the DeviceN capabilities of a workflow. If DeviceN is not handled correctly the colors are converted to CMYK. Instead of the check marks an **X** will appear in the lower left corner of each image and in the gradient.

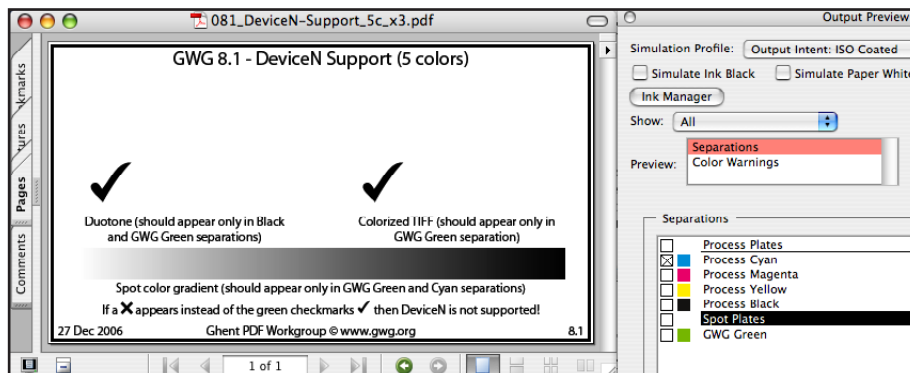
In addition you could inspect the color separations. The objects should appear only in the Black, GWG Green and Cyan separations as indicated in the captions:



Black



GWG Green



Cyan

## Notes

This is a basic patch and all graphic arts equipment which are PostScript Level-3 compatible should be able to handle this patch without any issues.

## Patch contributors

Stephan Jaeggi  
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Switzerland  
sjaeggi@prepress.ch

## Patch creation date

27 December 2006

## Patch 8.2 — DeviceN Support (4 colors)

### Intent

This patch is designed to identify clearly how applications and workflows handle DeviceN. This patch uses only process color.

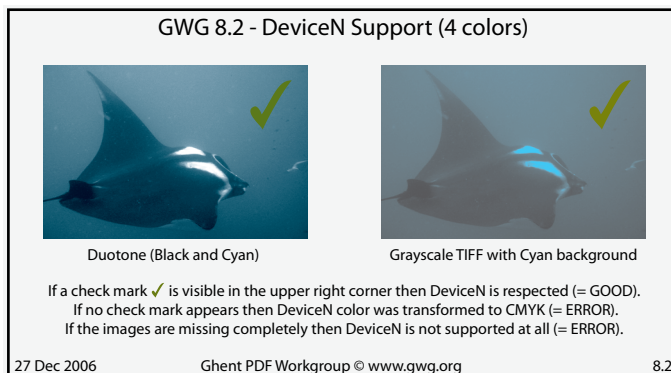
### Testing guidelines

Test patches may be used in two ways:

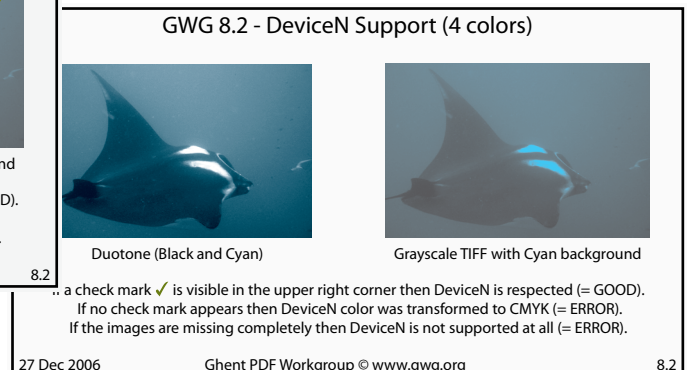
- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

### Method of evaluation

If the images are rendered as DeviceN color then greenish check marks are visible in the upper right corner of both images (reason: DeviceN can overprint CMYK). The check marks disappear if the DeviceN colors of the images are converted to CMYK since CMYK doesn't overprint in this case (OPM = 0). If an output workflow doesn't support DeviceN at all then the pictures will either be missing in the output or you will receive an error message and the entire job cannot be processed. (Note: there are no **X** in this patch.)



GOOD: both check marks are visible.



ERROR: no check marks are visible.

## Notes

This is a basic patch and all graphic arts equipment which are PostScript Level-3 compatible should be able to handle this patch without any issues.

## Patch contributors

Stephan Jaeggi  
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Switzerland  
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## Patch creation date

27 December 2006



## Patch 9.0 — Font Support

### Intent

This patch is designed to highlight certain problems that can arise with the handling of different types of fonts.

### Testing guidelines

Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

### Method of evaluation

#### Method 2

A visual comparison to a reference within the patch.

GWG 9.0 - Font Support	
<b>Type1 PostScript:</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (NewCenturySchlbk Italic)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (NewCenturySchlbk Italic)
<b>TrueType:</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (BookAntiqua-BoldItalic)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (BookAntiqua-BoldItalic)
<b>CID (Type1):</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (WarnockPro-BoldIt)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (WarnockPro-BoldIt)
<b>CID (TrueType):</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (PalatinoLinotype BoldIta)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (PalatinoLinotype BoldIta)
<b>Multiple Master:</b>	<code>dit is een multiple master ex ponto mm dit is een multiple master ex ponto mm</code> (ExPonto)
Expected result:	<code>dit is een multiple master ex ponto mm dit is een multiple master ex ponto mm</code> (ExPonto)
<b>Type 3 Vector:</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð\$EçABCD...XYZ (T1 / Garamond B</code>
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð\$EçABCD...XYZ (T1 / Garamond B</code>
<b>Type 3 Bitmap:</b>	<code>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf (</code>
Expected result:	<code>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf (</code>
03 Nov 2005 Ghent PDF Workgroup © www.gwg.org	

Correct rendering of the patch: all tests passed. All fonts have rendered as per the examples within the file.

GWG 9.0 - Font Support	
<b>Type1 PostScript:</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (NewCenturySchlbk Italic)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (NewCenturySchlbk Italic)
<b>TrueType:</b>	<code>ä ö ü Ä Ö Û ä ä ä f i ß l © ® @ D C E Æ O æ f j z % œ p ½ ð</code> (BookAntiqua-BoldItalic)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (BookAntiqua-BoldItalic)
<b>CID (Type1):</b>	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (WarnockPro-BoldIt)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (WarnockPro-BoldIt)
<b>CID (TrueType):</b>	<code>ä ö ü Ä Ö Û ä ä ä f i ß l © ® @ D C E Æ O æ f j z % œ p ½ ð</code> (PalatinoLinotype BoldIta)
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð</code> (PalatinoLinotype BoldIta)
<b>Multiple Master:</b>	<code>dit is een multiple master ex ponto mm dit is een multiple master ex ponto mm</code> (ExPontoMM)
Expected result:	<code>dit is een multiple master ex ponto mm dit is een multiple master ex ponto mm</code> (ExPontoMM)
<b>Type 3 Vector:</b>	<code>ä ö ü Ä Ö Û ä ä ä f i ß l © ® @ D C E Æ O æ f j z % œ p ½ ð \$ E ç A B C D . . . X Y Z ( T 1 / G a r a m o n d B o l d</code>
Expected result:	<code>äöüÄÖÛäääfißl©®@DCEÆOæfjz%œp½ð\$EçABCD...XYZ (T1 / Garamond Bold</code>
<b>Type 3 Bitmap:</b>	<code>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf (T10)</code>
Expected result:	<code>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf (T10)</code>
03 Nov 2005 Ghent PDF Workgroup © www.gwg.org 9.0	

Incorrect rendering of the patch: the tests for TrueType, CID (TrueType) and Type 3 vector have all been mishandled in the rendering as they do not match the expected result shown.

## GWG 9.0 - Font Support

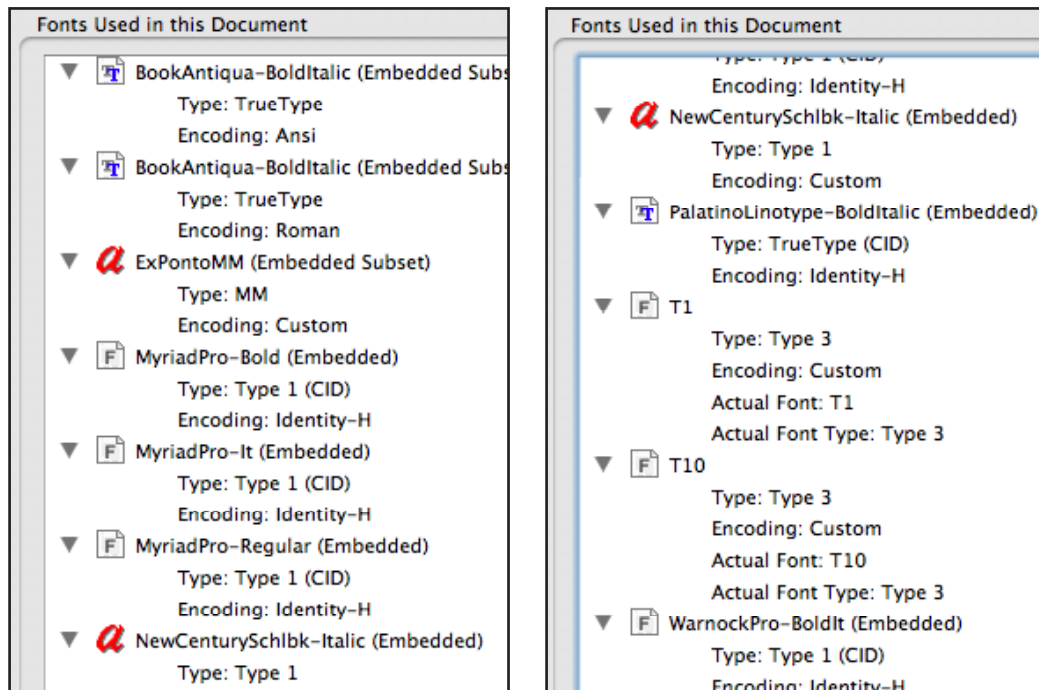
<b>Type1 PostScript:</b>	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(NewCenturySchlbk Italic)
Expected result:	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(NewCenturySchlbk Italic)
<b>TrueType:</b>	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(BookAntiqua-BoldItalic)
Expected result:	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(BookAntiqua-BoldItalic)
<b>CID (Type1):</b>	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(WarnockPro-BoldIt)
Expected result:	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(WarnockPro-BoldIt)
<b>CID (TrueType):</b>	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(PalatinoLinotype BoldItalic)
Expected result:	<i>äöüÄÖÜáâàâfifl©®@ÐŒÆŒøæfÿþ%ºp½ð</i>	(PalatinoLinotype BoldItalic)
<b>Multiple Master:</b>	<i>dit is een multiple master ex ponto mm dit is een multiple master ex ponto mm</i>	(ExPontoMM)
Expected result:	<i>dit is een multiple master ex ponto mm dit is een multiple master ex ponto mm</i>	(ExPontoMM)
<b>Type 3 Vector:</b>	<i>äöüÄÖÜáâàâfifl©®@ŒÆŒøæfÿþ%º\$£¢ABCD...XYZ</i>	(T1 / Garamond Bold)
Expected result:	<i>äöüÄÖÜáâàâfifl©®@ŒÆŒøæfÿþ%º\$£¢ABCD...XYZ</i>	(T1 / Garamond Bold)
<b>Type 3 Bitmap:</b>	<i>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf</i>	(T10)
Expected result:	<i>null fällt ein negativer Zahlungsstrom an. In den Jahren eins bis fünf</i>	(T10)
03 Nov 2005                      Ghent PDF Workgroup © www.gwg.org                      9.0		

The first line contains the text using the font.

The second line contains a bitmap representation of the expected result.

If the first line does not look similar than the second line something went wrong with the embedded fonts.

These fonts are embedded in the patch:



## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues. It is possible that the amalgamation of this patch with other patches may very well lead to problems.

## Patch contributors

Stephan Jaeggi  
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## Patch creation date

03 Nov 2005

## Patch 10.1 and 10.2 — Spot To CMYK Conversions

### Intent

Patches 10.1 and 10.2 replace patch 10.0. These patches are designed to highlight certain problems that can arise when converting objects in spot colors to CMYK. It is unlikely that these patches will show any errors in tests that do not convert the spot colors to a different color space. These patches use CMYK, spot color GWG Green and spot color Pantone 265 C

### Testing guidelines

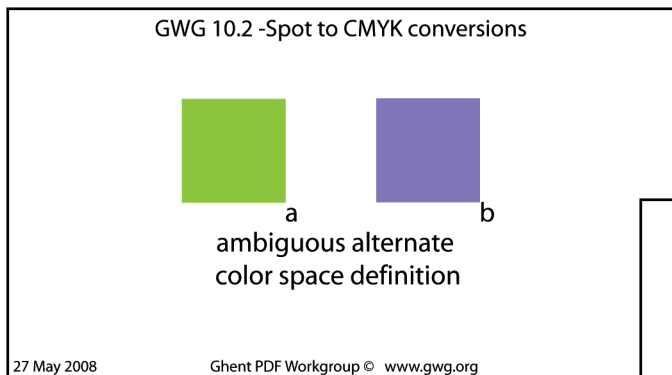
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

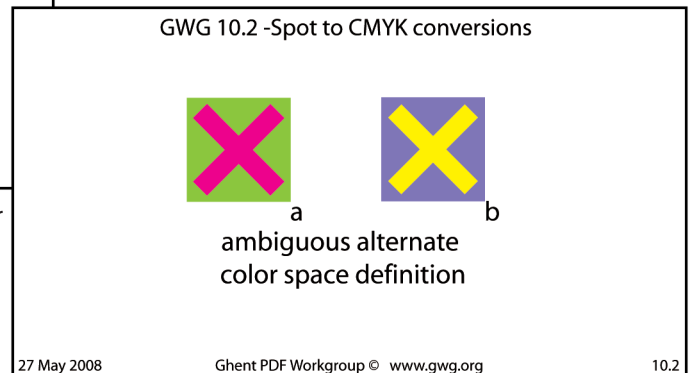
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file.



Correct rendering of the patch: all tests passed. No clear X is showing.



Incorrect rendering of the patch: tests a and b have failed.  
Each X indicates an incorrectly rendered test.

## Description of tests

It is possible for a faint X to appear in some of the tests on these patches. This does not constitute improper rendering of the test. Only when a clear X is showing can the test be considered as having failed.

### 10.1

- a) A Spot color GWG Green object is next to an object defined in the CMYK alternate for GWG Green. If a clear X appears it is because the alternate CMYK color definition has not been used converting from Spot to CMYK.
- b) A Spot color Pantone 265C object is next to an object defined in the CMYK alternate for Pantone 265 C. If a clear X appears it is because the alternate CMYK color definition has not been used when converting from Spot to CMYK. It is possible for a slight X to appear due to a look up of the spot color being defined on a pantone lookup table within the converting device. In most cases this is acceptable.

### 10.2

- a) Spot color GWG green is defined with two different alternate color spaces within the PDF file. When the patch is rendered using alternate color spaces, we believe the first available alternate color should be used for all occurrences of the color. If a clear Magenta X shows in the patch, two different alternates were used when rendering the patch.
- b) Spot color Pantone 265 C is defined with two different alternate color spaces within the PDF file. When the patch is rendered using alternate color spaces we believe the first available alternate color should be used for all occurrences of the color. If a clear yellow X shows in the patch, two different alternates were used when rendering the patch.

## Notes

This patch is to be used as a reference only and should not be used as a definitive guide to correct or incorrect behavior. The issues being checked in these patches are not clearly defined in the PDF specifications and could be interpreted in more than one way. The Ghent workgroup has taken the initiative to illustrate what we believe is the correct behavior based on what we believe would be the most common application of this type of content. We do not, however, imply in any way that this is the only way it can be interpreted.

## Patch contributors

Andy Psarianos  
F. E. Burman Limited  
United Kingdom  
<http://www.feburman.co.uk>

## Patch creation date

27 May 2008

## Patch 11.0 — default CMYK color spaces

### Intent

The intention of this patch is to identify correct or improper rendering of files with 'Default CMYK' objects in a PDF/X 3 file in which the default CMYK differs from the output intent. This patch uses Spot color GWG Green and Pantone 265C.

### Testing guidelines

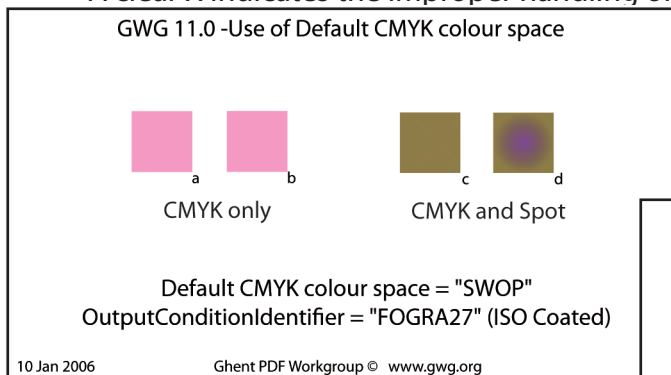
The files may be used in two ways:

- A single file may be used to test a specific step in a workflow, such as a RIP.
- The files together may be used to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

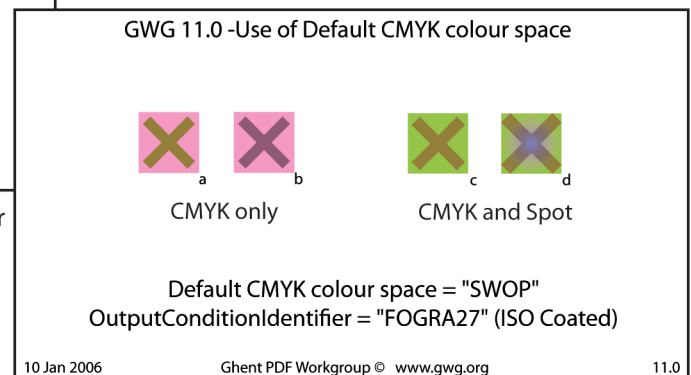
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file.



Correct rendering of the patch: all tests passed. No clear X is showing.



Incorrect rendering of the patch: all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

CMYK objects in a PDF/X3 file which have an ICCBased default color space are considered to be color managed objects in which the final CMYK values are calculated at the time of rendering/ripping by using a color conversion using data embedded in the PDF (source and target profiles and rendering intent). Since the final CMYK values need to be calculated, the overprint rules specify that overprints on spot colors will still be applied, but it will never overprint on the process colors, regardless of the OPM mode.

This patch is comprised of CMYK objects which have the overprint flag set on and OPM set to 1, on top of varying objects. The overall default CMYK color space in the document means that the objects can not overprint on underlying process colors. If an X shows in any of the tests, overprints have been applied incorrectly. It is possible for a thin line to appear when displaying this file due to smoothing and this is normal and acceptable and does not indicate a fault. As this file is color managed 'Output Preview' must be switched on in Adobe Acrobat in order to view it correctly.

- a) A CMYK vector object colored 50% Magenta is set to overprint a CMYK vector object colored to 50% Cyan 100% yellow.
- b) A CMYK vector object colored 50% Magenta is set to overprint a Device Grey vector object colored to 50%
- c) A CMYK vector object colored 50% Magenta is set to overprint a solid vector object in Spot color GWG Green.
- d) A CMYK vector object colored 50% Magenta is set to overprint a multiple Spot shading using GWG Green and pantone 265C.



## Notes

Great care needs to be taken when evaluating the results of amalgamation tests which incorporate this patch. This patch is capable of introducing issues that will force the amalgamating application to miss-handle other patches that are grouped with this patch.

## Patch contributors

Andy Psarianos  
F.E.Burman Limited  
United Kingdom  
<http://www.feburman.co.uk>

## Patch creation date

10 Jan 2006

## Patch 12.0 — White Overprint/Knockout

### Intent

This patch is designed to identify clearly how applications and workflows handle white overprint and knockout.

### Testing guidelines

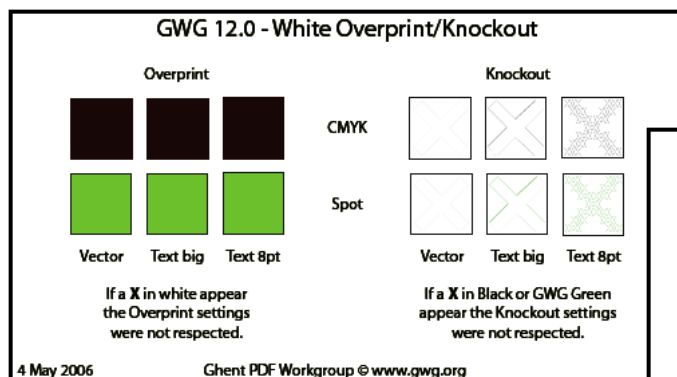
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP.
- Patches may be grouped with other patches to test the whole of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

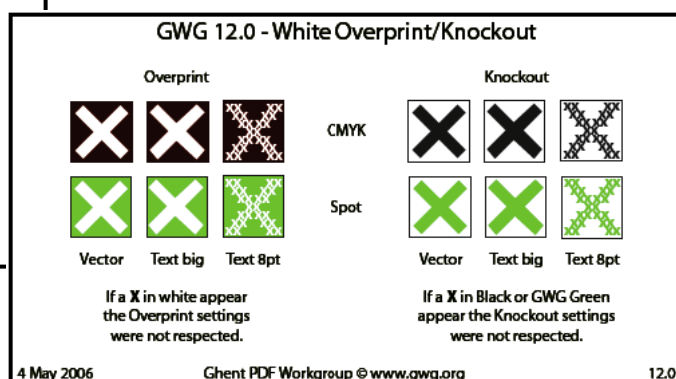
### Method of evaluation

#### Method 1

A clear **X** indicates the improper handling of a file.



Correct rendering of the patch, all tests passed. No clear **X** is showing.



Incorrect rendering of the patch, all tests have failed. Each **X** indicates an incorrectly rendered test.

## Description of results

A lot of workflows and RIPs try to “fix” white objects by setting white always to knockout. This test has elements with vector, big text (59 pt) and small text (8 pt). Both overprint and knockout of process and spot colors are tested.

When a workflow or RIP changes the overprint behaviour of an element an X appears.

## Reason of this test

The application notes for ISO 15930 (PDF/X specification) clearly state that “The overprint settings applied to objects within a PDF/X file reflect the intent of the PDF/X file’s creator and must be preserved by applications or RIPs used in an imaging workflow. Applications and RIPs not configured to honor overprint contained in the PDF/X may produce unintended imaging results.”

Therefore the overprint setting should not be changed during the process.

## Notes

This is a basic patch and all graphic arts equipment should be able to handle this patch without any issues.

## Patch contributors

Stephan Jaeggi  
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## Patch creation date

27 December 2006

## Patch 13.0 13.1, and 13.2 — Color Management

### Intent

Patches 13.0 13.1, and 13.2 are meant to test the proper handling of PDF files that contain color managed objects within them. These patches use device independent data as well as objects in CMYK, but do not include any spot colors.

### Testing guidelines

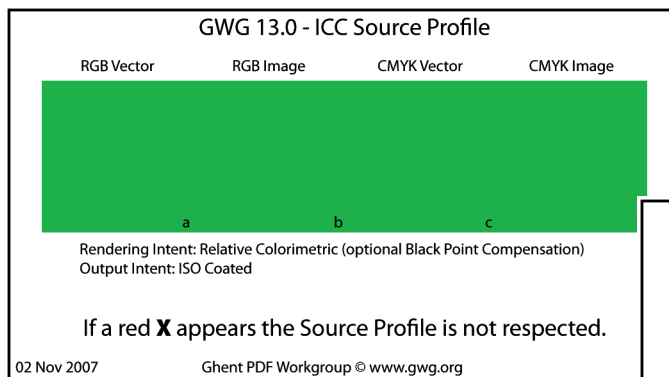
Test patches may be used in two ways:

- A single patch may be used to test a specific step in a workflow, such as a RIP
- Patches may be grouped with other patches to test the step of a workflow that will aggregate multiple files together, e.g. for partial page advertisements in a magazine.

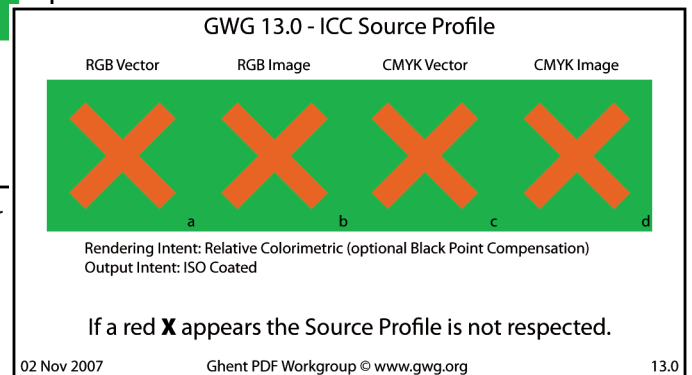
### Method of evaluation

#### Method 1

A clear X indicates the improper handling of a file.



Correct rendering of the patch: all tests passed. No clear X is showing.



Incorrect rendering of the patch: all tests have failed. Each X indicates an incorrectly rendered test.

## Description of tests

### Patch 13.0

The intention of this patch is to identify correct or improper rendering of files using a source profile.

If an X clearly shows, the patch has been rendered incorrectly. Either the source profile was not used at all or an alternative source profile was used.

- a) A red RGB vector element uses an ICC profile that switches the red and green channel in order to result in a green appearance
- b) A red RGB image element uses an ICC profile that switches the red and green channel in order to result in a green appearance
- c) A red CMYK vector element uses an ICC profile that switches the cyan and magenta channel in order to result in a green appearance
- d) A red CMYK image element uses an ICC profile that switches the cyan and magenta channel in order to result in a green appearance

Every test consists of a background defined in DeviceCMYK that yields the color the test element has to become if rendered correctly.

The test element itself is constructed partly as a vector graphic (left part of the X) and an image (right part of an X)

The embedded output intent "ISO coated" has to be used as the destination profile in order to get the desired result.

## Patch 13.1

The intention of this patch is to identify correct or incorrect rendering of files using any of the four rendering Intents.

If an X clearly shows, the patch has been rendered incorrectly.

If half an X clearly shows up either the vector element or the image element has been rendered incorrectly.

If a green X clearly shows in any test (a, b, c or d), then the patch was rendered ignoring the ICC based definition of the four tests as all.

If in any test the clear X is rendered to the color of any other test, then the rendering intent of the other was incorrectly used.

Every test consists of a background defined in DeviceCMYK that yields the color the test element has to become if rendered correctly.

The test element itself is constructed partly as a vector graphic (left part of the X) and an image (right part of an X)

All four test patches use "Coated Fogra 39 (ISO 12647-2:2004)" as source profile. As destination profile the embedded output intent "RenderingIntentTestprofile" has to be used in order to get the desired result.

## Patch 13.2

The intention of this patch is to identify correct or incorrect rendering of files using overprinting vector elements defined in an ICC based CMYK.

This patch is comprised of:

- a) A white vector element defined in CMYK with a source profile is set to overprint and overprint mode is 1. Underneath a red CMYK vector element is placed.
- b) A green vector element defined in CMYK 75/0/100/0 with a source profile is set to overprint and overprint mode is 1. Underneath a red CMYK vector element is placed.

If an X clearly shows, the patch has been rendered incorrectly. The most likely cause is that the element was converted into the destination color space without changing the (OPM) to 0 during the conversion resulting in a device color that can overprint CMYK elements and giving a different visual result.

As stated in the PDF reference manual, an element defined in an ICC based color space must not overprint another DeviceCMYK element even if the overprint mode is 1 - the overprint mode has to be ignored.

If a PDF/X conforming workflow performs the color conversion from the source color space to the destination color space resulting in a device color, the overprint mode should be set to 0 so the overprint behavior of the object renders the same as defined in a calibrated color space.

## Notes

The files are not suitable for use in building a pre-constructed test page, because in doing so the output intent in each file must either be lost, applied (e.g. by conversion of the whole patch to CMYK), or will affect all other patches from which the test page is built. The files can however be amalgamated together in order to test the amalgamating software.

## Patch contributors

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Austria

## Patch creation date

02 Nov 2007