

---

---

# Harlequin RIP

## Page and Separation Features for GUI versions of the Harlequin RIP

Technical Note Hqn023

June 2001



One of the strengths of the Harlequin RIP is the extent to which it can be easily configured to support new functionality.

One aspect of that configurability is the facility to add a short PostScript code fragment to the start of every job processed through the RIP. Such code fragments are referred to as **Page Features** and may be selected from a pop-up menu on the Page Setup dialog.

A second such selection may be made when using the Harlequin RIP to auto-separate composite color jobs. These are described as **Separation Features** and may be selected by a pop-up menu on the Separations dialog.

The files themselves are saved in **SW/Page Features** (mapped to **SW\PAGEFEAT** under Windows) and **SW/Separation Features** (mapped to **SW\SEPFEAT** under Windows). Any files which the RIP finds in these directories will be automatically added to the appropriate menu.

## 1 Features supplied with the RIP

A number of feature files are supplied with the Harlequin RIP, many of them may prove to be useful as they stand, but all of them are also intended to act as examples of the kind of facility which may be added to the RIP in this way. To emphasize that fact, a number of the page features are shipped in the **SW/Page Features/Examples** directory. In order to access these files from the RIP they must be copied up one level in the directory hierarchy.

The purpose of the supplied files falls into a number of categories – the list below is organized by these. Except where noted otherwise all of the features described below are page features. Files whose names are noted with a † will be found in the **Examples** directory.

## 2 Emulations

The Harlequin RIP is capable of emulating a number of different printer control languages. Selecting one of these page features will process all jobs reaching the RIP through that Page Setup assuming that they are defined in the appropriate printer control language.

### **Epson†**

Incoming jobs will be processed as Epson Esc/P format.

### **HPGL†**

Incoming jobs will be processed as Hewlett Packard's HPGL (7475A) plotter control language.

### **PCL4†**

Incoming jobs will be processed as Hewlett Packard's PCL (version 4) printer control language.

## **3 Spot Color Separations**

### **3.1 List Spot Colors**

If you are auto-separating composite color jobs, but don't know exactly what spot colors have been used in the original job then you can find out with this page feature. All spot colors which could be separated will be listed in the System Monitor. With the list you can then add those spot color separations which you wish to produce to the list on the separations dialog. Any spot colors which are not included on that list will be converted to process colors while auto-separating.

Some colors may be noted as (**requires level 1 separator conventions**). If you wish to produce separations for these colors you must ensure that the **Use Level 1 spot color** checkbox on the Separations dialog is checked.

### **3.2 Separate Spot Colors**

If you are auto-separating composite color jobs and want to automatically produce separations for all spot colors used then you can select this Separation Feature from the pop-up menu on the Separations dialog. Some applications may require that you also check the **Use Level 1 spot color** checkbox on the Separations dialog – the List Spot Colors page feature may be useful in determining whether that is necessary.

## 4 Media Saving

All of the features listed in this category use the `HqnImposition` procset which is designed to be easily configurable in a large number of ways. The procset is described in *Using the Harlequin RIP Extensions, Guide for OEMs* where information showing how these features may be adjusted to your special needs may be found. The procset is capable of producing press-ready impositions, but such imposition signatures are, by their very nature, specific to a particular environment and not appropriate for more general use features. All of the features described here use imposition as a media saving device, rather than producing press-ready signatures.

Note that the imposition referred to here is the imposition of pages, not of separations. For example, if a two page composite color PostScript job is auto-separated in the RIP and a feature which imposes four pages per film is used, then the Cyan separation of pages one and two would be imposed on the first film, the Magenta separations on the second film etc. A total of four films would be produced (if only process separations were requested). If the same job were separated in the front-end DTP application then each separation would appear to the RIP as a separate page, and only two films would be output – the first would include all the separations for page one, and the second all the separations for page two.

### 4.1 2 across

This feature places two pages side by side. The page orientation will be as requested in the original PostScript job. No gutter will be added between the pages. The first page will be placed on the right hand side because this allows for adjustments which mean that less film is wasted on some drum image setters where a job includes an odd number of pages.

### 4.2 2 up

This feature places two pages one above the other. The page orientation will be as requested in the original PostScript job. No gutter will be added between the pages.

### 4.3 2x2 Reduced†

This feature imposes pages in a 2 by 2 grid and scales them down by 50% so that the final output is actually the same size as the original page. It is expected to be of most use on laser printers.

### 4.4 Fill Film

This feature will fit as many pages as possible onto the film.

The size of the film to be filled is defined as follows:

Device Type	Film Width	Film Height
Capstan	cassette width	default page height on Page Setup dialog
Part Drum	default page width on Page Setup dialog	cassette width
Full Drum	maximum imageable length round drum (setterWidth)	cassette width
Sheet	Maximum scan line length (setterWidth)	Maximum slow scan dimension (setterLength)
Unlimited (e.g. TIFF)	default page width on Page Setup dialog	default page height on Page Setup dialog

---

† Note that the 2 up page feature supplied with the Harlequin RIP revisions before 3.3 rev 7 effectively produced the same output as the 2 across feature, but rotated through 90°. That was changed for revision 7.

A gutter of between 3 and 8 mm will be included between pages, depending on how much room there is. Pages will be rotated if that will allow a larger number of pages to fit on the film.

#### **4.5 Fill Film & Cropst**

This feature adds the marks drawn by the Crop Marks feature (see below) to the Fill Film feature. Gutters between pages will be between 0.5 and 8 mm.

#### **4.6 Pack Capstan†**

This feature will fit as many pages as possible across the width of film on a capstan image setter. The film width is taken from the value entered in the cassette manager.

Pages may be rotated to minimize film usage. A gutter of between 3 and 8 mm will be included between pages, depending on how much room there is.

The film will be filled from the right hand side because this can reduce the amount of data which needs to be sent to the image setter when the last film of a job is not completely filled.

#### **4.7 Pack Capstan & Cropst**

This feature adds the marks drawn by the Crop Marks feature (see below) to the Pack Capstan feature. Gutters between pages will be between 0.5 and 8 mm.

#### **4.8 Pack Drum†**

This feature will fit as many pages as possible into the film area of a drum image setter. The film height is taken from the value entered in the cassette manager, and the width from values set by the plugin.

Pages may be rotated to minimize film usage. A gutter of between 3 and 8 mm will be included between pages, depending on how much room there is.

The film will be filled from the right hand side because this allows for adjustments which mean that less film is wasted at the end of jobs which do not completely fill the last film on image setters which do not need to feed a complete drum-full of film when exposing.

#### **4.9 Pack Drum & Crop†**

This feature adds the marks drawn by the Crop Marks feature (see below) to the Pack Drum feature. Gutters between pages will be between 0.5 and 8 mm.

#### **4.10 Panel Sheet†**

This feature was designed for sheet fed devices, such as very high quality color output engines, where the output media is rather large and expensive. While it does not necessarily fit as many pages as possible onto the media, it does so in such a way that a job which includes pages of different sizes may be imposed efficiently (e.g. jobs created by concatenating a number of EPS files with appropriate code between them). In contrast, the Fill Film feature may fit more pages onto a sheet, but a change of page size will cause the current sheet to be exposed and a new sheet started.

Pages may be rotated. A gutter of between 3 and 8 mm will be included between pages, depending on how much room there is.

## **5 Additional Marks**

### **5.1 Confidential†**

This feature adds “DRAFT Company Confidential” across each page printed. This code is an example of using a PostScript Level 2 pattern.

### **5.2 Crop Marks†**

This feature adds marks to every page printed. The page size requested by the PostScript job is increased to produce a margin 30 points (10.5 mm) wide all round the page, and the marks are drawn in this area. In addition the contents of the page will be allowed to bleed into the margin by 12 points (4.2 mm).

The marks drawn include:

- Crop and register marks.
- File name, page number and the time and date when it was interpreted.
- Color step wedges for process colors.
- Progressive color patches for process colors.
- Separation names for process and spot colors.

The step wedges, progressives and separation names will be shown whether the job is auto-separated in the RIP or supplied to the RIP pre-separated.

Note that the crop marks are positioned at the corners of the page area requested by the PostScript job. If that page area does not match the document's page area then the crop marks will not appear where you might expect them.

This code is an example of the facilities offered by the `HqnImposition` procset.

### **5.3 Draft†**

This feature draws "Draft" in outline text diagonally across each page printed. This code uses the `HqnImposition` procset.

## **6 Miscellaneous**

### **6.1 Bounding Box†**

This feature is designed for processing EPS files, which typically do not include PostScript code to set a page size (indeed, the EPS specification states that they should not), and where the origin of the drawing may well not be at the bottom left of the objects to be drawn. These factors often lead to media wastage, or to parts of the data not being imaged because they are outside the area printed. The feature acts on the `%%BoundingBox` and `%%PageBoundingBox` comments in the file to set the page size, and to move the data into the area to be imaged. This code uses the `HqnImposition` procset.



## 6.2 DCS File Search†

DCS is a format defined by Quark Inc. to allow small EPS view files to be imported into QuarkXPress and for XPress to integrate four high-resolution separation files at print time. A number of vendors have adopted this approach and include the small 'master' in PostScript output from their software. This page feature allows the master file to be passed through as far as the RIP, and for the RIP itself to replace the low resolution image with the high resolution pre-separated images.

DCS image replacement may be used both when auto-separating jobs through the RIP and when the front-end DTP application has been used to separate the job first.

DCS version 1. is supported with this feature. Single file DCS version 2 is not supported.

When using a PC-based RIP (Windows 3.1 with Win32S or Windows NT) the DCS files must be saved in such a way that the file name of each separation file is a valid DOS (8.3) filename. The simplest way to do this is normally to save the master with a name containing only upper case alpha-numeric characters and no more than 8 characters long.

The page feature will normally require manual configuration in order to specify the directories which will be searched for separation files. Full details on the configuration required are included in the notes at the top of the page feature file. By default only a directory called DCS within the **sw** directory will be searched.

**Please note:** This page feature does not *create* DCS files and must be viewed as part of a complete system in which 5-file DCS sets are created (master plus four high-resolution separations) and placed in a position accessible to the RIP. This system may be as simple as saving files from Adobe PhotoShop to a file server accessible from both the workstation and the RIP, or as complex as may be required to achieve the desired production flow. It is also possible to work with a smaller number of high resolution separations as long as the DCS comments in the master file correspond to the plates required (e.g. for mono only work).

### 6.3 Error Handler – Long† and Error Handler – Short†

These two features install an extended error handler which can be used to assist in diagnosing PostScript errors. The error handler is described in tech note Hqn017. The two features differ in the amount of information reported in the System Monitor when a PostScript error is encountered.

## 7 Writing your own Page Features

Adding new functionality by writing your own page and separation features is an excellent way of differentiating your product from that supplied by other Harlequin RIP OEMs.

As noted in the introduction to this tech note a Page Feature is simply PostScript language code saved in the **SW/Page Features** directory. Such code can be viewed and changed using any editor which is capable of saving files in plain text (ASCII) format. Almost any code which you might want to prepend to jobs processed through the RIP may be included in these files.

You will usually find that the easiest way of writing a new Page Feature is to edit an existing one if any of the supplied features provide similar functionality. The following notes may also be useful:

- The Page Features are interpreted very near the end of the Page Setup information, meaning that almost all of the settings on the RIP's Page Setup dialog are already in the current state and may be detected by the code in the feature and used as desired. The only item which is not yet set is the PostScript Level – all Page Features are executed in Level 2 context.
- A simple Page Feature may be written to install the job being processed with it into PostScript VM semi-permanently (i.e. until the RIP is rebooted), e.g. by including "**true 0 startjob pop**", but any code included in a Page Feature after that point will be ignored.
- The file object which will be executed for the job itself may be accessed (and altered) as **/stdin** in **serverdict**. See any of the emulation page features for an example.

- It is not usually appropriate to make changes to settings which are not subject to normal job encapsulation in a Page Feature. Such changes include calling `setsystemparams`, or defining new values in global dictionaries. If you do make such changes you should be aware that they will probably affect subsequent jobs, even if the feature is not used for those jobs. We recommend that you make such changes in short, utility jobs rather than in Page or Separation Features.
- The name of the file in the Page Features directory is used when constructing the pop-up menu of features on the Page Setup dialog in the RIP. This name is passed through the file mapping code when the menu is constructed. On PC RIPs in particular you may wish to add an entry to `FILEMAP.PS` to allow a more descriptive name to appear on the menu.

## 8 Writing your own Separation Features

A Separation Feature is very similar to a Page Feature, except that it is interpreted slightly earlier in the start-job sequence.

The intention behind offering Separation Feature functionality is to allow custom code specifically related to color separation and screening to be included in the job without preventing a more general Page Feature to be added. Please bear in mind that the functionality was *not* designed to support such general code as may be used in Page Features.

- The Separation Features are interpreted after all the information entered on the Separations dialog has been processed. Thus all halftone, screening, black generation data is available for inspection and alteration.
- When used with RIP versions 3.2 and 3.3 the Features are interpreted before any PostScript language code emitted by the selected output plugin. This may mean in some circumstances that information related to color can be changed after the Separation Feature is interpreted (e.g. many plugins can change the `/Tones` array in the page device).
- When used with RIP version 4.0 Separation Features are interpreted immediately before Page features, and after any PostScript language code emitted by the selected output plugin.

- Separation Features are not interpreted at all if auto-separation is not selected..
- Separation Features are interpreted in a Level 2 context.

T

<b>Change history</b>		
v 1.0	95.07.07	First release.
v 1.1	95.10.26	Expand and correct description of Fill Film
v 1.2	96.03.12	Minor change for ScriptWorks 4.0
v 1.3	2001.06.18	Updated cover page and copyright page. Removed references to ScriptWorks and replaced with Harlequin RIP. No other changes made to text.





**Copyright © 1992–2001 Global Graphics Software Limited.**

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of Global Graphics Software Limited.

The information in this publication is provided for information only and is subject to change without notice. Global Graphics Software Limited and its affiliates assume no responsibility or liability for any loss or damage that may arise from the use of any information in this publication. The software described in this book is furnished under license and may only be used or copied in accordance with the terms of that license.

ScriptWorks is a registered trademark and Harlequin, the Global Graphics Software logo, EasyTrap, FireWorks, FlatOut, Harlequin Color Management System, HCMS, Harlequin RIP, Harlequin Color Production Solutions, HCPS, Harlequin Color Proofing, HCP, Harlequin Full Color System, HFCS, Harlequin ICC Profile Processor, HIPP, Harlequin Standard Color System, HSCS, Harlequin Chain Screening, HCS, Harlequin Dispersed Screening, HDS, Harlequin Micro Screening, HMS, Harlequin Precision Screening, HPS, Harlequin Screening Library, HSL, Harpoon, RipFlow, ScriptWorks MicroRIP, ScriptProof, ProofReady, SetGold, Scalable Open Architecture RIP, SOAR, TrapMaster, TrapWorks, PDF Creator and RIPFlow are all trademarks of Global Graphics Software Limited.

Portions licensed under U.S. Patents: Nos. 4,500,919, 4,941,038 and 5,212,546. EasyTrap is licensed under one or more of the following U.S. Patents: Nos. 5,113,249, 5,323,248, 5,420,702, 5,481,379.

Adobe, Adobe Photoshop, Adobe Type Manager, Acrobat, Display PostScript, Adobe Illustrator, PostScript, Distiller and PostScript 3 are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries which may be registered in certain jurisdictions.

Global Graphics Software Limited is a licensee of Pantone, Inc. PANTONE® Colors generated by ScriptWorks are four-color process simulations and may not match PANTONE-identified solid color standards. Consult current PANTONE Color Publications for accurate color. PANTONE®, Hexachrome®, and PANTONE CALIBRATED™ are trademarks of Pantone, Inc. © Pantone, Inc., 1991.

Other brand or product names are the registered trademarks or trademarks of their respective holders.

#### US Government Use

The ScriptWorks software is a computer software program developed at private expense and is subject to the following Restricted Rights Legend: "Use, duplication, or disclosure by the United States Government is subject to restrictions as set forth in (i) FAR 52.227-14 Alt III or (ii) FAR 52.227-19, as applicable. Use by agencies of the Department of Defense (DOD) is subject to Global Graphics Software's customary commercial license as contained in the accompanying license agreement, in accordance with DFAR 227.7202-1(a). For purposes of the FAR, the Software shall be deemed to be 'unpublished' and licensed with disclosure prohibitions, rights reserved under the copyright laws of the United States. Global Graphics Software Incorporated, 95 Sawyer Road, Waltham, Massachusetts 02453."