



HARLEQUIN® multiRIP™ v13

The Harlequin RIP® delivers exceptionally high performance and quality for plate making for conventional print and for light production digital printing. It's compliant with industry standards and compatible with a wide range of PDF design tools. It's also extremely flexible: OEMs and ISVs can deploy

the Harlequin RIP purely as a RIP and rebrand it with their own GUI, or, they can deploy it as a near turn-key solution, taking advantage of workflow options that include in-RIP trapping, screening, proofing, color management, imposition and font emulation.

Find out more by contacting: info@globalgraphics.com

Performance

The demand for throughput in prepress is continuing to rise in response to shorter runs and larger, more complex files including those containing variable data. The Harlequin RIP is the fastest renderer on the market and thanks to features like Harlequin VariData™ and Harlequin Parallel Pages™ your customers will be able to get more print jobs out of a shift.

Color management

Harlequin ColorPro™ in-RIP color management provides excellent color control, giving accurate, consistent color reproduction on any device and across a wide range of workflows. It gives your customers the color fidelity that they expect.

Exceptional quality

Hand in hand with amazing color reproduction Harlequin's in-RIP screening options result in pin-sharp images even at relatively low resolutions. Together with Harlequin ColorPro™ it's a powerful combination for your device.

In-RIP workflow

A rich feature set means that OEMs and system integrators can build a wide variety of solutions, fine-tuned for specific use cases. As well as color management and screening, many processes can be handled within the RIP including trapping, proofing, imposition and font emulation.

PostScript and PDF in one RIP

Your customers need a RIP that will handle multiple file formats natively in one engine because it will be faster, more efficient and will provide consistent output quality. One RIP interface with this capability is easier for OEMs to integrate because there is just one set of color management, screening, imposition etc. to connect to, if required. The Harlequin RIP has processed PostScript® language files natively since 1988 and PDF files natively since 1997, including rendering of live PDF transparency since 2002. (For the full list of file formats see Features)

One RIP to drive many devices

Use the Harlequin RIP to drive plate-makers, CtP, proofing devices, and digital presses so that your customers benefit from using a common operating environment and achieving consistent output.

Compatibility and compliance

Global Graphics is active in its support for technical standards. Our RIP technology is compliant with industry standards as well as being compatible with the wide variety of tools making PDF in the field. As such, it strikes a balance between compliance with specifications and compatibility with real-world print jobs.

WHAT'S NEW AT A GLANCE?

- Finer control over how each output separation is handled. Each may be rendered, omitted, ignored or emulated.
- Extended user interface controls for PDF Processing Steps (ISO 19593-1). Enables fully automated handling of technical separations such as cut and fold lines without explicit configuration to use the spot color names that the designer happened to use when creating the file.
- Added native processing of PNG image files, alongside PDF, PostScript, TIFF™, JPEG, BMP, etc. Color management, calibration and screening capabilities etc are applied in a consistent way across all formats.





What's new in Harlequin 13?

Fine control of output separations

The options available for handling each colorant have been extended, to support Harlequin users expanding their use of the RIP into new marketplaces where more spot colors may be used.

Render – This separation name matches an ink that I will be running on press. Render this separation.

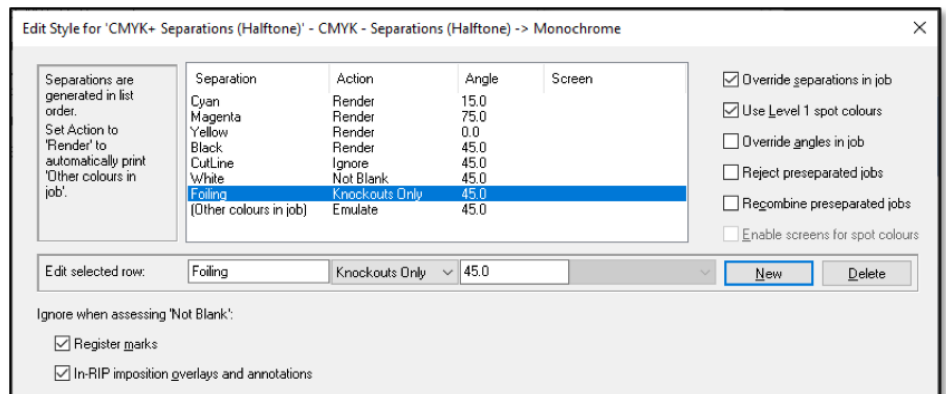
Not Blank – This separation matches an ink that I have on press, but if it doesn't have any marks on it, I don't want to waste time or money in making a plate for it. Render this separation if it has any marks on it. Additional controls (**new in v13**) are included to allow register marks and marks added by the RIP itself to be ignored when determining if a separation is blank.

Knockouts only – This separation matches something that will be laid down on the final print, but I don't need a separation for it right now. Do not render this separation, but do take account of any graphical objects in it knocking out of other separations. This can be useful for spot colors that should not be either rendered or emulated, such as foiling; or for re-rendering a job for a single replacement plate. **New in v13 for spot separations that are not explicitly named.**

Ignore – This separation is in the incoming job, but should not affect the printed output. Do not render this separation and do not take account of any graphical objects in it knocking out of other separations. This can be useful for technical separations. It avoids an unwanted white line through the live graphics if a cut-line was accidentally set to knock-out, for instance.

New in v13.

Emulate – a spot separation from the job should be emulated using process inks. This allows specified spot separations to be emulated while applying one of the other options to "other colors in job". **New in v13 for explicitly named spot separations.**



Extended file format support

Harlequin 13 now includes native processing of PNG files, alongside PDF, PostScript, EPS, TIFF, JPEG etc. PNG is an important image file type, especially for wide format printing and product decoration.



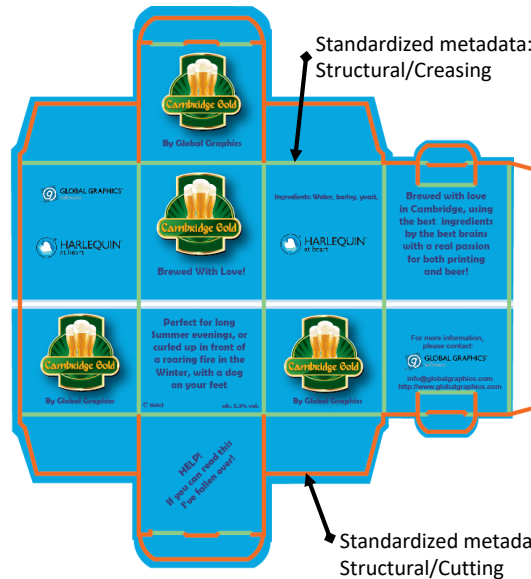


New in Harlequin MultiRIP 13

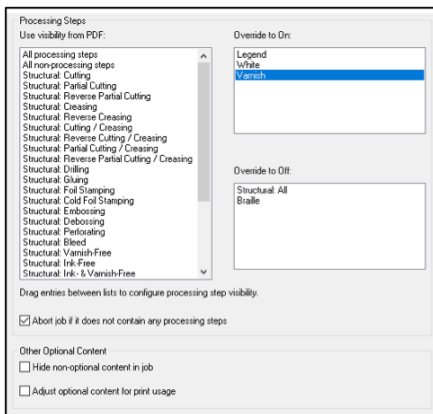
Automation for handling technical separations

A new user interface has been added to control which PDF Processing Steps from an input job should be rendered.

PDF Processing Steps (ISO 19593-1) can identify non-print graphics in a PDF file, such as cut lines, embossing etc, especially in jobs for labels and packaging. This enables fully automatic processing of labels & packaging jobs with technical marks. Without Processing Steps an operator needs to first check what spot names have been used in the job to identify technical separations and then to create a specific configuration using those spot names. With Processing Steps the operator can simply say "don't render any technical marks other than dimensions and legends" that will be applicable for all jobs using Processing Steps.



PDF Processing Steps promises the ability to control technical marks without needing to analyze each file and create a different setup for each job



PDF 2.0 support

In 2017 the International Standards Organization published the first new version of the PDF standard since 2008. The new ISO PDF 2.0 standard, ISO 32000-2, is the first PDF specification developed within the ISO working group structure involving subject matter experts from many countries.

The safest approach to the adoption of PDF 2.0 for prepress vendors is to ensure that all applications that consume PDF, such as your workflow, are upgraded to support PDF 2.0 because if your customer sends files for processing that contain some of the new features in PDF 2.0 they will usually be silently ignored by an older reader with unexpected results in output.

Harlequin MultiRIP has supported all of the features of the new standard that are relevant for production printing since version 12. These include:

- AES – 256 encryption
- Output Intents
- Inheritance of color spaces for PDF transparency
- Tagging objects to use black point compensation (BPC)
- Halftone Origin

PDF 2.0 also includes a number of clarifications, especially around when the color of graphical objects should be transformed into a blending color space for transparency. In the vast majority of cases Harlequin was already aligned with the clarified text and did not need to be changed.



Enhanced productivity and performance

Harlequin MultiRIP is tuned to deliver high-quality rendering and color management at maximum speed.

Impressive performance

- Speed enhancements are targeted at **image heavy jobs** so that in light production printing, where presses are driven by a single RIP, pages are fed even more quickly to the press, increasing productivity so that print service providers can fit more jobs into a shift. It also provides similar benefits in short-run offset or flexo printing of catalogs and similar image-heavy work.
- **Fast variable data** printing: The Harlequin RIP already contains Harlequin VariData™ to speed up the processing of variable data saved as PDF/VT or PDF. Each graphic is rendered only once even if it is used in multiple positions on a page. Global Graphics is one of the foremost experts in PDF/VT.

Features for labels and packaging

In addition to brand color matching and a selection of screens for flexo, offset and digital production Harlequin MultiRIP offers:

- A range of features to support flexo printing, providing a high-quality, fast, yet affordable solution for driving flexo platesetters. Global Graphics' specially designed Harlequin Cross Modulated Flexo (HXMFlexo) screens provide the best print quality comparable to offset, achieving outstanding results in the highlight areas of images, such as tones close to white or skin tones.
- With the **Harlequin Color Editor™** named color tables may now be edited to add brand colors or override the supplied PANTONE databases to meet customer demand. An API is available to make the same changes from other software such as your own prepress workflow.
- The **Harlequin Contour Processor™** intercepts specified spot separations and exports them. Many packaging and label jobs include die lines and other technical separations which often need to be printed for proofing, or for aligning prints and pre-cut media or post-print die cutting. Those separations need to be removed from the raster for production printing. This feature is also useful for wide format plotter cutters.
- **Control PDF layers:** In many label and packaging workflows different processing steps are encoded as layers (optional content) in the PDF file. Harlequin allows you to selectively enable or disable individual layers to ensure that you render exactly the content that you need.
- Overriding overprint for white, varnish and metallic: Some special colorants should not knock out of, or be knocked out by, other colorants. A varnish should never knock out of other colors, for instance, while a white ink laid in under other colors should not be knocked out by 'real' graphics in other inks. Harlequin 11 includes configurations that allow these overprints to be controlled.
- Control when spot emulations are blended with process colors: On a digital press most brand colors will be emulated using process inks. If you're emulating a conventional press (e.g. Fogra 43) you won't want to constrain your brand color emulations to that gamut, so the brand emulations must be merged after the emulation profile is applied. But you do want to ensure that those brand emulations don't over-ink the substrate, so it must be done before any ink-limiting profile.
- **Color-Logic support:** Harlequin includes a framework that makes it easy to add support for Color-Logic and other metallic design tools if your digital device includes a white colorant



Download our white paper for more information about how PDF 2.0 impacts print so that you can share it with your colleagues and customers.
www.globalgraphics.com/impact-of-pdf-2-0-on-print-production



Workflow options

The Harlequin MultiRIP offers workflow options that run inside the RIP enabling near turn-key implementations by OEMs.

Color management & proofing

Included with the Harlequin MultiRIP is Harlequin ColorPro™ which provides excellent color management, giving accurate, consistent and predictable color reproduction for a wide range of ICC-based workflows. Harlequin SetGold Pro™ is a utility for making high-quality input and output profiles that are tightly integrated with the Harlequin MultiRIP and optimizes the quality of the color output of the printing or proofing device. A Color Management Module (CMM) API also allows OEMs to easily add their own or third-party color management

Font emulation

The Harlequin RIP has one of the most advanced font emulation capabilities on the market. Where there is a missing font, this feature can be switched on to make a typographically acceptable match with no text overflow and, where character spacing, weight and width matches that of the missing source.

This feature is the winner of a 2007 PIA/GATF Intertech™ technology award.

In-RIP trapping

Our powerful trapping solution, Harlequin TrapPro™, doubly powerful in-RIP trapping handles trapping automatically, as the page is processed in the prepress workflow. Trap configuration can be set in-RIP, or supplied using industry-standard controls in PostScript and PDF jobs.

Simple imposition

Simple Imposition is an optional in-RIP imposition capability which can be used for bound work, N-up, cut & stack and step & repeat. Imposition management is accessed and edited easily through simple, graphical GUI controls accessed directly from the Page Setup dialog within the RIP.

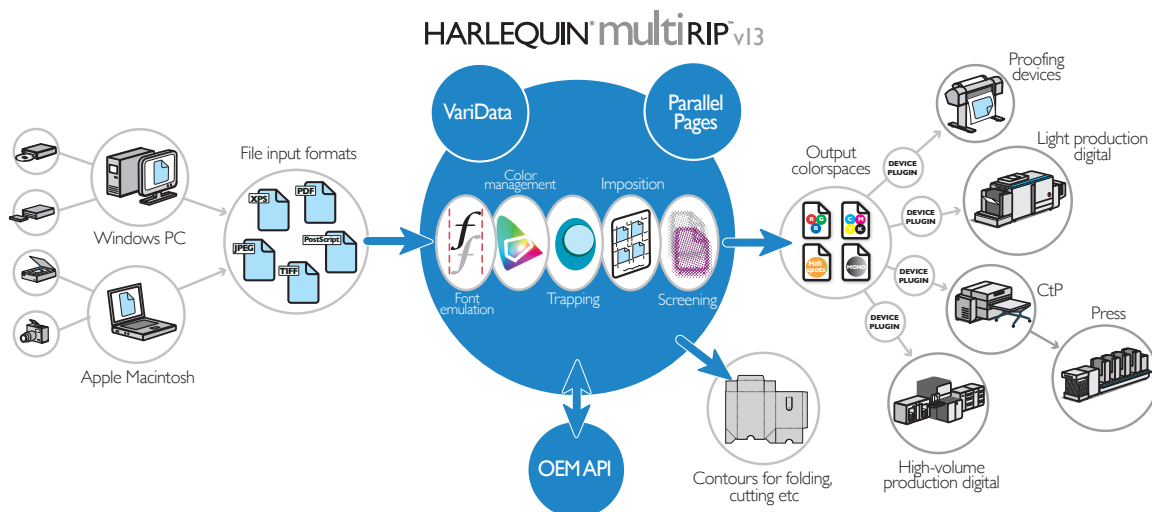
Screening

Global Graphics is at the forefront of screening technology. Global Graphics has developed

a range of advanced screening techniques designed to resolve the quality issues faced by the prepress and printing industry and includes our solution for high-quality stochastic screening - Harlequin Dispersed Screening™ (HDS), as well as special screen sets developed specifically to support extended gamut and photo ink colorant sets.

Harlequin Cross-Modulated Screening™ (HXM) is a hybrid screen that builds on the best aspects of conventional and stochastic screening. A screening API allows OEMs to easily plug in their own screening algorithms or a complete screening solution of their choice. Third party screening solutions can also be used with the Harlequin MultiRIP.

Seamless screening can be used to ensure that no screening artifacts appear where your graphics join around a flexo sleeve or gravure cylinder.





Features

Harlequin MultiRIP can be configured for specific market requirements by our OEM partners, to include some or all of the following features. OEMs may also choose to offer some features as extra-cost options for their Harlequin-based solutions.

Input file types

PDF from 1.0 to 2.0 - Including PDF Processing Steps
 PDF/X - 1a, 3, 4 and 5
 PDF/VT-1, PDF/VT-2
 PostScript® levels 1, 2 and 3, EPS, DCS (1 & 2)
 JPEG, TIFF™, **BMP (New in Harlequin 12.1)**, **PNG (New in Harlequin 13)**

Input data sources

Jobs and control files can be received from: hot folder, socket, Windows print subsystem etc. Input plugin API enables Global Graphics' OEM partners to write plugins for additional delivery protocols and hardware

Color management

Harlequin ColorPro™ color management module (CMM)
 Support for RGB, CMYK, N-Color, gray and DeviceLink ICC version 2 and 4 profiles
 Press/Proof Simulation
 CMM API allows replacement with OEM's own IP
 SetGold™ utility: gray balance and ink limiting before profiling
 FograCert certified contract proofing system (when used with Epson Stylus Pro 7890 and according to the application data sheet)
 Black point compensation to match the ISO standard, and per object in PDF 2.0.
 Support for Color-Logic metallics
 Look-up tables for emulating PANTONE®, PANTONE Plus, PANTONE Goe and PANTONE XCG spot colors

Calibration

Calibration, dot gain, tone curve controls
 Intended and actual press curves
 API to enable addition/replacement of calibration curves by third party prepress equipment

Trapping

Harlequin TrapPro™
 Trap Zone support



Features

Font support

All font types for PostScript. PDF and XPS supported, for all languages and scripts.
 Pack of 35 PostScript fonts available for inclusion.
 Font substitution and emulation
 Automatic job cancelation when fonts are not available, if desired

Variable data optimization

Harlequin VariData caches common graphical elements for re-use

Screening

Includes screening tuned for a variety of devices:

- Harlequin Precision Screening™ (HPS)
- Harlequin Dispersed Screening™ (HDS). FM/Stochastic screening.
- Harlequin Cross-Modulated screening (HXM) hybrid screening. Variants available for both offset and flexo; new variants can be developed for toner devices.
- Seamless screening for flexo sleeves and gravure cylinders
- support for encrypted screen caches enables secure deployment of cacheable screens
- Screening API enables addition of OEM's own IP in programmatic screens for error diffusion, etc. Also enables third-party screening.

Output devices

Plugins available for creation of:

- TIFF, supporting separated and composite color, screened and contone output
- CIP3 for ink-key pre-setting
- PDF wrapped raster for soft-proofing of the actual results from the RIP

Output plugin API enables Global Graphics' OEM partners to write plugins for many output devices and file formats

Output formats

Rasters delivered in wide variety of color spaces, interleaving styles, etc. Contone or screened. Including Mono, RGB, CMYK, Spots (including white, varnish, silver etc), extended gamut (eg CMYKOV, CMYKOGV), PhotoInk (eg CcMmYKk)

Security

Choice of dongled or software protection
 Perpetual or time-limited licenses



System requirements

Operating systems	Windows 8.1 to Windows 10; Windows Server 2012 R2 to Server 2019. Excluding 'Server Core', 'Nano-server', 'embedded', 'industrial' and IoT variants.
CPU	Processor: Intel Pentium 4 or later, AMD Athlon 64 or later Multi-core support including Harlequin Parallel Pages 64-bit
RAM	Minimum 2 GB RAM (64-bit OS) <ul style="list-style-type: none">• use of Harlequin VariData requires additional RAM• processing speed will normally be greater with more RAM
Storage	4 GB free space (minimum)
Ports	USB port if using dongle based security

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