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Harlequin[®] MultiRIP[™] vI 2.0r0 Release Notes

Global Graphics Software Limited (GGSL) is pleased to announce the release of the Harlequin Multi-RIP[™] v12.0r0 (HMR).

Note: The Harlequin MultiRIP release is delivered under embargo and may not be delivered to customers or announced publicly until after the Global Graphics launch on 10 April 2018. Beta sites under NDA are allowed.

This release note contains the following information:

- "Alerts" on page 2.
- "New features and improvements" on page 3.
- "Notes about this release" on page 3.
- "Updates to supported platforms and compilers" on page 7.
- "Plugins and utilities" on page 8.
- "Since Harlequin 11.0r1" on page 11.

Alerts

1.1 Security considerations for OEM partners using LDK licensing

We have received security advisories from Gemalto (formerly SafeNet), from whom we license the LDK technology. They identify vulnerabilities in LDK runtime versions that have all been addressed in version 7.60. We will continue to include the latest relevant LDK runtime with Harlequin, and we strongly recommend that you include that latest version in your own installers. If you are still shipping older versions of Harlequin for any reason we also advise that you update your installers for those to include the latest version of the LDK runtime rather than continuing to supply the version of LDK runtime that was supplied with that older Harlequin version from us.

1.2 LDK and Windows updates

If you receive error messages after running LDK and Windows 10 major updates, please re-install the latest LDK runtime.

1.3 Separating output styles not working with monochrome-only output devices - #378201

When using a CMYK or RGB separations style with monochrome-only output devices, an error is reported. Currently there is no workaround for this issue. A fix is scheduled to be included in 12.0r1.

1.4 Output issue with imposition control strip in 12.0r0 - #378239

There is an issue with control marks when using imposition. Using the font size selection code after selecting a font can result in the text appearing larger than expected. A fix is scheduled to be included in 12.0r1.

2 New features and improvements

Please note the following changes made to HMR v12.0r0:

- PDF 2.0 support. For more information see "PDF 2.0 support" on page 4.
- Add automatically incremented serial numbers and data read from CSV over PDF pages or as complete pages (#377225). For more information see "Dynamic overlays for variable data printing" on page 5.
- Removal of SOAR. For more information see "SOAR NX" on page 6.
- URW++ fonts replacing Linotype. For more information see "URW++ fonts to replace Linotype" on page 6.
- Emulation of Esko RIP rendering weight: both APPE-based and FlexRIP. For more information see "Emulation of Esko RIP rendering weights" on page 6.
- Update to supported platforms (#376746) and compilers (#376745). For more information see "Updates to supported platforms and compilers" on page 7.
- Amended NamedColor API (#374238, #376425 and #377410). If you've implemented code around the NamedColor API, please note that it has changed in incompatible ways in v12. For more information see the *API Reference Manual*, Chapter 2 Brand Color Editor.
- The RIP has been changed to accommodate very large dictionaries (#377823). Dictionary sizes of up to 11 million entries have been tested. Sizes of up to approximately 1 billion entries could work (in theory), but performance would be compromised.

3 Notes about this release

This section contains notes about the changes made to v12.0r0.

3.1 Procset changes

The following procsets have been changed between HMR v11.0r6 and v12.0r0:

DCSCommentParser, GGFontEmulation, HqnAssert, HqnCalibrate, HqnColorBar, HqnColorDatabase, HqnConfigProvider, HqnConfigureRIP, HqnControl, HqnGIF, HqnHtm, HqnHVDParams, HqnICCBased, HqnImportICC, HqnImpose2, HqnInputTypes, HqnLayout, HqnLocal, HqnMedia, HqnMissingFonts, HqnOPICommon, HqnPageSetupConf, HqnParseComments, HqnPDFPages, HqnPushCalibration, HqnScanResource, HqnSettings, HqnUNC, HqnWhite.

The following procset has been added to HMR v12.0r0:

HqnCSV

The following procsets have been removed from HMR v12.0r0:

HqnBlob, HqnPSToCORBA, SOARInFlight

3.2 Localization requirements

GGS can supply a Japanese localization for HMR v12. For more information see the *Harlequin Multi-RIP Localization Kit Release Note v12.0r0*.

3.3 PDF 2.0 support

The latest iteration of the PDF standard was published by ISO as ISO 32000-2 in August 2017. It's the first new version of PDF since ISO 32000-1 was published in 2008.

Harlequin 12 supports all of the features of PDF 2.0 that are relevant for production printing at least as far as the standard requires, and beyond in some cases:

- AES-256 encryption
 - Note that this is the new AES-256 encryption specified in PDF 2.0; it is not the same as that
 documented in Adobe's ExtensionLevel 3, which is sufficiently flawed that its use is prohibited in a PDF 2.0 file.
- Unicode passwords
 - In previous versions of PDF the encoding used for encryption passwords was undefined, which could lead to what appeared to be the same password working on one platform and not working on others.
- Zero-length axial blends (where both ends of the blend are at the same location) are now not drawn at all, even if they define extensions colors. This is to match a clarification in PDF 2.0.
- The HTO graphics state key is supported to define halftone offsets. It can be very useful when
 imposing for very large format output to ensure that halftone registration doesn't drift across the
 sheet.
- The UseBlackPtComp graphics state key is supported, to control the use of black point compensation.
- "Text strings" in PDF files may now use any of PDFDocEncoding, UTF-16 or UTF-8.
- Output Intents may now be used at the page level as well as at the document level.
 - PDF 2.0 defines how these should be encoded into the PDF file, but does not provide guidance on when and how to use them. Harlequin will use them if the file is PDF 2.0 and if the output intent self-identifies as a PDF/X intent.
 - Some of the samples that we have seen so far do not conform to the PDF/X requirements around output intents, so we are keen to investigate with real-world files as they start to become available. We have ensured that files that don't fully conform will process in a reasonable way, but will show a warning.
- Device color spaces as transparency group blending color spaces are now replaced with an equivalent CIE-based color space from an ancestor, if present.
- Equivalent inheritance is applied for graphics defined in device color spaces when the current blending color space, or that of an ancestor group, is an equivalent device-independent color space.
- The value of SpotFunction in a halftone may now be an array instead of a name or function. When an array is specified (and Harlequin has not been configured to ignore screens defined in the job) then the first one supported by the RIP will be used.
- PDF 2.0 also removes the restriction that only SpotFunction name values defined in the PDF specification itself can be used. Harlequin has not enforced that restriction for several years.
- PDF metadata reported in the RIP log and used for page annotations etc is now taken from the file's document-level XMP metadata stream, if present, instead of the info dictionary.
- 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.

1 5

And PDF 2.0 deprecates a number of features of older versions of PDF, meaning that an application creating a PDF 2.0 file should not write them and that an application reading the file "should ignore them". We have taken the decision that, at least for Harlequin 12, they will be acted on as if they were not deprecated because Harlequin is a tool for production, not a preflight or validation application. Examples include all encryption methods other than AES-256.

You can find additional information that may be useful in preparing your own team and your sales channels at:

- White paper: http://www.globalgraphics.com/impact-of-pdf-2-0-on-print-production
- Webinar: https://www.youtube.com/watch?v=anhTN7FI1Ow

If you feel you need access to the PDF 2.0 standard itself it can be obtained from https://www.iso.org/standard/63534.html. Alternatively you may find it cheaper to purchase from your own national standards body (e.g., NPES in the USA, BSI in the UK, DIN in Germany, etc).

PDF 2.0 will be included in your standard product automatically as long as your contract includes PDF support. The special PDF 2.0 preview licenses provided for Harlequin 11 RIPs are no longer required.

3.4 ColorPro included with all Harlequin MultiRIP 12 licenses

As from Harlequin MultiRIP version 12 ColorPro will be bundled in all MultiRIP licenses. This doesn't mean that we're immediately removing the capability of using "no color management" color setups; those will be retained for the foreseeable future and setups migrated from older versions will continue to use them.

You don't need to do anything special to get ColorPro; we will add it into the LDK licenses for both new orders and upgrades automatically.

3.5 Dynamic overlays for variable data printing

Over the last few years we've put a lot of effort into increasing the speed of PDF/VT and optimized PDF files using Harlequin VariData. But there are still some opportunities that are a better fit for a simpler approach to variable data.

In Harlequin 12 we've added support for adding overlays on top of a single page PDF file. A configuration file specifies where marks should be added, and what form they should be in, and the data itself is either supplied in a CSV file or as automated counters.

The mark types available in Harlequin 12 are:

- Text, with control over font, size, color, alignment etc
- Graphics, with control over scaling, rotation etc
- Barcodes, with control over which symbology to use, color, size etc

Example use cases run from simple serial numbers on labels to QR Codes for personalized URLs to postal barcodes and addresses on envelopes.

The configuration file format is documented - see the *Extensions Manual* - but Global Graphics is not producing any tools to create such files at this time.

We're describing these as "overlays" because that's how we expect them to be used most often. But they can also be used to generate pages from scratch (e.g., for simple labels) or for imprinting over pre-printed backgrounds.

The dynamic overlays are included in the Simple Imposition layered option. You will need the new barcode layered option as well to use the Harlequin Barcode Generator in dynamic overlays.

For more information see the Extensions Manual, Chapter 7 - Simple imposition.

3.6 Emulation of Esko RIP rendering weights

In the labels and package printing sectors Esko is an important supplier and we take care to ensure that Harlequin can process PDF files generated by the Esko creation workflows.

But Esko also sell their RIPs for use in plate setting (especially for flexography) and in digital front ends for inkjet and toner presses. The original Esko RIP (called the FlexRIP in the flexo world) would render small vector graphics much lighter than Harlequin does by default. More recently Esko have switched to a different RIP based on APPE which now renders heavier/darker than Harlequin.

The differences are very subtle at the high resolutions used for a high quality flexo plate-making, but at resolutions below 1000dpi, common for digital presses, they can be quite significant.

There are some new configurations available in Harlequin 12 that can be used to match the rendering of vector graphics in either of those Esko RIPs. Note that this affects vector graphics rather than text, but a lot of text in labels and packaging is converted to vector outlines before the job reaches the RIP.

3.7 URW++ fonts to replace Linotype

Global Graphics acquired the URW++ font foundry (urwpp.de) in 2015, but to date has continued to ship fonts from Linotype with Harlequin RIPs. As from Harlequin 12 we will be switching to supply URW fonts with Harlequin instead of Linotype fonts. If your licenses include the Linotype option that will enable the 35 base URW fonts instead. If you're using the alternative "Shiva" fonts, those will be unaffected.

The URW fonts are significantly higher quality than the Linotype fonts, and this switch allow us to offer an additional pack of 101 fonts to provide the standard 136 "PostScript 3" font set.

It also means that we can offer more fonts, such as non-Latin fonts to help you break into new markets. More information on the URW++ products is available at https://www.urwpp.de/en/, but of course that site doesn't provide full information about OEM deals.

Please contact your account manager if you would like more information on options for extra fonts.

3.8 SOAR NX

The functionality previously provided by SOAR in Harlequin MultiRIP up to version 11 has been removed in HMR v12. Please contact Martin Bailey if you wish to discuss routes forward.

3.9 Unload installer

The Unload installer produces a different directory structure with effect from HMR 12.0r0. The number and depth of subfolders has been reduced and subcomponents of individual items are now collected into single folders. The net effect is that the simpler layout is closer to that used by the HMR product installer.

4 Updates to supported platforms and compilers

4.1 Harlequin MultiRIP v12

	Windows
64-bit	Windows 7 (requires SP1, excludes Starter edition)
	Windows Server 2008 R2 (requires SP1, Standard Edition only, excludes Server Core configuration)
	Windows 8.1 (requires SP1, excludes Windows RT)
	Windows Server 2012 R2 (Standard Edition only, excludes Server Core configuration)
	Windows 10 workstation (excludes Windows Mobile and Mobile Enterprise, embedded and IoT Core)
	Windows Server 2016 (Standard Edition only, excludes Server Core, Nano-server configurations)

Table. I Supported platforms - Harlequin MultiRIP v12

Note: All Windows versions exclude "embedded", "industrial" and IoT variants.

Note: HMR v12 is 64-bit only; it is not supplied as 32-bit.

Note: On Windows Server 2012 R2, if HMR is not installed in the default directory, but for example, on a second disk, you may have to right-click the executable and select Run as Administrator in order for it to run.

5 Plugins and utilities

Build plugins for Harlequin MultiRIP v12.0r0 with MSVC 2015.

Any plugins distributed with this release are supplied solely for use with the Harlequin MultiRIP v12.0r0.

Note: The Harlequin MultiRIP will support OEM and third-party plugins using input and output, color management and screening APIs.

Note: The following table lists the standard and optional plugins and the various utilities available with the Harlequin MultiRIP v12.0 $^{\circ}$ 0:

Availability	Plugin/Utility	v12.0r0	v11.0r6
Standard	Migrate	9.0r0	8.0r3
Standard	Genlin	3.1r1	3.1r0
Standard	SetGold	5.3r0	5.3r0
Standard	LDK utilities	1.8r0	1.7r0
Standard	Spro2ldk	2.0	1.3r1
Standard	LDK Runtime	7.63	7.54
Standard	Socket	3.2r3	3.2r2
Standard	Spool folder	3.6r3	3.6r2
Standard	PDF Raster	1.4r3	1.4r2
Standard	Testdev (none)	3.2r4	3.2r3
Standard	TIFF	4.5r0	4.4r0
Standard	CRD Generator plugin	60.0	50.0r0
Standard	XPS PrintTicket Device	12.0r0	11.0r6
Optional	CIP3	1.6r2	1.6r1
Optional	OKI PCL C9650 laser printer	1.7r2	1.7r1
Optional	OKI C931/C941/C942	2.4r3	2.4r1
Optional	NT Pipe	1.1r3	1.1r2
Optional	Plugin Kit	20.3	20.2r4
Optional	vDot4 plugins for Epson Stylus Pro 4900, 7890, 7900, 9890, 9900		
Optional	vDot5 plugin for Epson SC-P6000, SC-P8000, SC-P7000 (SE), SC- P7000 (CE), SC-P9000 (SE), SC-P9000 (CE).		v5.04

Table. 2 Standard and optional plugins - Harlequin MultiRIP v12

6 Documentation change details

This section contains details of the various documents which have been created or updated for v12.0r0:

Document	Status	Format
Release Notes (this document)	Issued	PDF/MIF
HHR Getting Started Guide (Windows, Linux and Mac)	Draft	PDF
Extensions Manual	Draft	PDF
SDK Developer's Guide	Draft	PDF
API Reference Manual	Draft	PDF

Table. 3 Documentation change details - Harlequin v12

Documentation is available on the support FTP site at: http://support.globalgraphics.com/login.html. Go to: /HQN_Common/HMR_Doc/.

Note: All technical notes are located at: /HQN_Common/HMR_Doc/Technical_Notes/.

7 Since Harlequin 11.0rl

Harlequin revisions are nominally maintenance only, but there are always a few small features that sneak in. Just as a reminder, here are some of the more important items that have been added since we shipped 11.0r1 in March 2016.

Note: The # numbers are 'TFS' tracking numbers in our database, as reported in the release notes for each revision.

- Added TrueType font blacklist to disable hinting in problematic fonts (11.0r2, #370340)
- Added inversion of silver to white for Color-Logic (11.0r2, #371663)
- Added option for an alternate CMM to request that a color be processed by ColorPro instead (11.0r2, #373816)
- Black Point Compensation has been updated from the original Adobe specification to match the ISO standard (11.0r3, 368356)
- Added object type to the alternate CMM API to enable different processing for vector and image data (11.0r3, #375337)
- Added HDS screen sets for 7 colorants in support of extended gamut printing, e.g. CMYKOGV (11.0r3, #369066)
- Added Double-dot HDS in support of flexo and screen printing (11.0r3, #374661)
- Added latest additions to PANTONE Goe (11.0r3, #374441)
- Added PANTONE XCG lookup tables (11.0r3, #373742)
- Improved Pantone emulation accuracy using white point (11.0r4, #371771)
- Increased max number of spots per page to 8000 (11.0r4, #374416)
- Supported on Windows Server 2016 (11.0r4, #375526)
- Added ability to encrypt and license PostScript resources (11.0r4, #374453)
- Extended control over PDF Optional Content (11.0r4, #375997)
- Control when emulated spots are merged with process colors (11.0r5, #375340)
- Controls to override object flatness and extend range (11.0r5, #376241)
- Anti-aliasing extended to 5-, 6- and 7- colorant output (11.0r5, #375627)



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Harlequin® MultiRIP - v12.0r0

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HMR Release Notes-OEM

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tests/rwlock7.c

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zlib - general purpose compression library

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Little cms - color management engine

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