



TurboRIP 3.0

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Quick View

TurboRIP 3.0

System Requirements

Minimum
Maximum

Overview

IPTech's TurboRIP 3.0's RIP engine delivers compelling advances from Adobe's latest technologies including support for PDF 1.5 and performance gains that result from Adobe's new addition to the **CPSI 3016 RIP technology of Multi-Threaded Rendering (MTR)**. IPTech has also added its own enhancements; including improved color management, screening, and page size handling along with a full list of additional features described below.

RIP Highlights:

- Incorporates Adobe's latest Extreme CPSI 3016 technology

- Compatibility with Adobe PDF 1.5 – input files are converted to the latest Acrobat 6 PDF format

- Performance improvements from Multi -Threaded Rendering (MTR) that enables the RIP to utilize multiple CPU's if available

- CIE-Profile Based Color Management

- IPTech hybrid screening and screening libraries

- Seamless printing for Flexographic applications

- Oversized job support

- TurboViewer™ – allows screen preview of all pages

- Adobe In-RIP trapping

- JDF support

TurboRIP3.0 Raster Image Processor

TurboRIP 3.0 is IPTech's high speed Raster Image Processor for the Microsoft® Windows NT®, Window 2000 Server platform and Windows XP Pro . TurboRIP 3.0's RIP combines Adobe® PostScript 3™ and native PDF support with an intuitive web based interface for configuration and control.

A.1 New in TurboRIP 3.0

PDF 1.5 Support

TurboRIP 3.0 supports PDF 1.3, 1.4 and 1.5, as produced by Acrobat 6. This includes more efficient compression techniques for all types of PDF files and JPEG 2000 compression for embedded images. TurboRIP also supports PDF/X a file format preferred by advertising publishers.

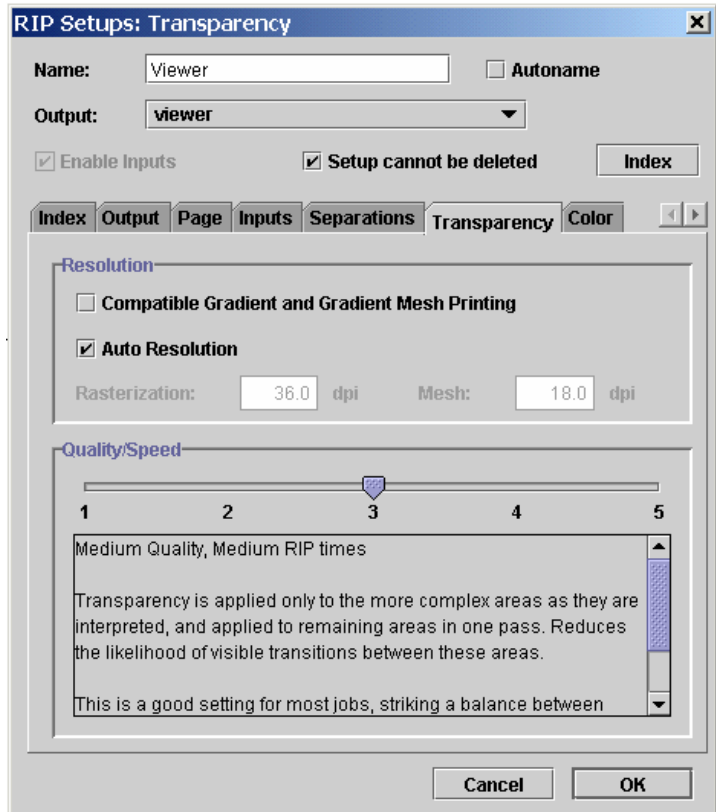
A key feature in PDF 1.4 and above is support for transparency and translucency. TurboRIP 3.0 efficiently renders transparent and translucent by "flattening" them into opaque PostScript® objects that simulate the effect of transparency.

IPTech has created an enhanced interface to the new transparency feature, which helps to make the rendering of PDF transparency easier to understand and to configure.

TurboRIP's user-friendly interface presents five options for rendering PDF transparency. The advantages and the tradeoffs of each choice are described in clear, non-technical language.

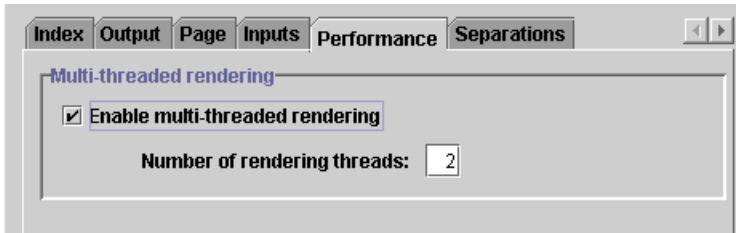
TurboRIP 3.0 also lets users specify the transparency rasterization and mesh settings manually, or by choosing the Auto Resolution setting, which uses the RIP Setup's final output resolution to derive appropriate values for these two transparency settings.

TurboRIP's compatible gradient and gradient mesh feature produces superior output by recognizing and optimizing graphics that have been designed to display smooth color transitions or blends.



A.2 Multi-Threaded Rendering (MTR)

Multi-threaded rendering is designed specifically to improve performance by dividing the compute-intensive work of rendering the interpreted PostScript among multiple independent threads or CPU's.



With MTR, multiple threads concurrently render the scan lines within a band with the ultimate goal of minimizing the idle time across one or more CPUs. MTR produces noticeable performance gains with jobs that are rendering bound. Typically, such jobs contain large numbers of images, vectors, or gradients.

In Adobe's recent press release (August 19, 2003), Adobe states "When tested, rendering speeds increased up to 44 percent on dual-CPU systems, and up to 65 percent on quad-CPU systems".

A.3 CIE-Profile Based Color Management

Adobe's CPSI 3016 offers improved CIE-based color conversion capability. IPTech has expanded this feature to provide a wide-ranging set of controls over how colors are processed and managed:

- Device color input controls allow users to choose ICC input files for the DeviceGray, Device RGB and Device CMYK color spaces.
- CIE-based color input controls allow users to choose ICC input profiles for the four CIE-based color spaces, or to force CIE-based colors to an appropriate device color space.
- Embedded profiles controls allow users to choose whether to honor ICC profiles embedded in EPS, JPEG, or TIFF files.
- Image rendering intent controls allow users to specify a specific rendering intent for images, with the option to choose a Perceptual, Relative Colorimetric, Absolute Colorimetric, or Saturation intent.
- Output Rendering Dictionary controls allow users to choose a default Color Rendering Dictionary (CRD), and to specify whether or not that CRD should override any job-specified CRD.
- Output Color Adjustment controls offer the choice between two OCA modes. Users can specify the use of a specific OCA file, or can route OCA requests to selected RGB and CMYK devicelink profiles
- Enhanced overprinting options allow users to specify overprint behaviors for Black, CMYK, and spot colors in a number of specific situations.
- ICC profiles (input, output, or devicelink) can be overridden in jobs that have them, or added to jobs that don't. ICC profiles embedded in JPEG, TIFF, or EPS are honored.

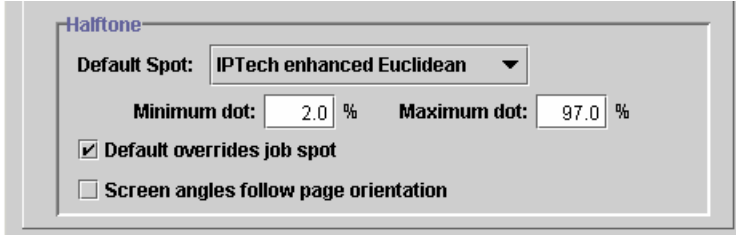
A.4 JDF RIP Control

Adobe's CPSI 3016 includes supplemental libraries and sample code that provide the basis for implementing Job Definition Format (JDF) control. IPTech will be building on this framework in the future to enable TurboRIP to process print jobs from any JDF-producing application.

A.5 Hybrid Screening

TurboRIP's Hybrid Screening option combines the best of traditional halftoning with newer "stochastic" techniques, to achieve highly accurate highlight tints, smooth blends and vignettes.

Traditional "amplitude modulated" (AM) screening often falls short in rendering highlights and smooth blends, because the smallest dots can disappear on press. "Frequency modulated" (FM) screening does a better job at holding highlights and shadows by randomly placing larger, more printable dots. But FM cannot match the overall visual quality of AM screening, and may present other challenges to proofing and on press.



This feature works as follows: A TurboRIP user determines the capabilities of his imager or press at the two ends of the tint scale, and enters these as the "Minimum dot" and "Maximum dot" for a TurboRIP RIP Setup. TurboRIP uses the specified minimum and maximum printable dots to image tints beyond these values by removing dots in a random manner.

TurboRIP's Hybrid Screening allows printers who prefer AM screening to extend the gamut of their presses by increasing the range of tint values that can reliably be printed on their presses.

A.6 IPTech Screening Library

TurboRIP 3.0 offers eight new screening options for halftoned output. TurboRIP uses a proprietary IPTech threshold array generator to create custom halftones on the fly. This enables greater control over the screening process, and allows us to offer Hybrid Screening, and other enhancements to come.

The new screens are IPTech Euclidean, IPTech enhanced Euclidean, IPTech elliptical, IPTech round positive, IPTech round negative, IPTech square positive, IPTech square negative, and IPTech line.

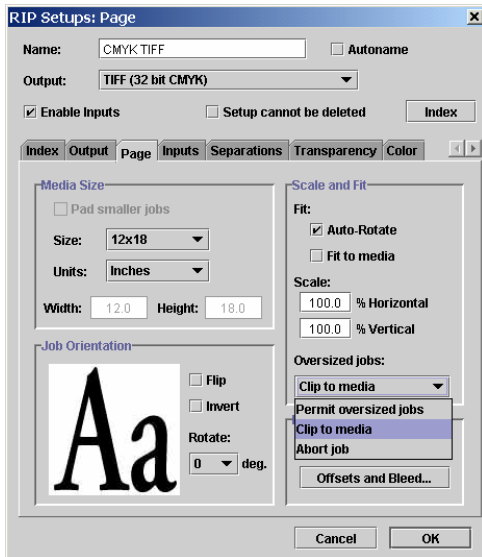
A.7 Seamless Printing

A key capability of flexographic printing is its ability to print continuous imagery, with no visible seam between the top and bottom of the printed image.

IPTech has done advanced work with proprietary imaging and screening technologies to achieve truly seamless matches at the head and tail of the flexographic cylinder. IPTech TurboRIP 3.0 offers unmatched quality in this important application area for flexographic printers.

A.8 Improved Handling of Oversized Jobs

TurboRIP 3.0 offers flexible ways to handle oversized jobs, as well as any jobs that do not define a page size. All of these options can be set at the RIP Setups interface, so that different customized behaviors can be selected for each RIP Setup.



TurboRIP offers several new ways to ensure that jobs will fit on the available media. Often, an oversized job can be made to fit onto the output media by simply rotating the output page. The “Auto-Rotate” option will do this automatically, while maintaining the scaling specified at the RIP Setup.

If it is not possible to fit the job by rotating it, the “Fit to media” option will choose the best rotation, and then do the minimum amount of scaling to make the job fit.

TurboRIP also allows you to choose how to handle jobs that remain too large to fit on the output media. “Clip to media” option will center the job onto the output media. “Abort job” will stop any jobs that exceed the dimensions of the output media. The “Permit oversized jobs” option will remove any size limits on the output, allowing maximum flexibility for cases where the output may be trimmed at a later time.

Together, TurboRIP’s fit options and oversized job policy choices make it easier to set up automated job flows that require a minimum of operator intervention.

A.9 Performance Enhancements

TurboRIP 3.0 incorporates the latest version of Adobe PostScript, which has been performance-tuned through the improvement of algorithms, code paths, and bug fixes, in addition to the new MTR rendering technology, which takes advantage of concurrent processing in multiple CPU systems.

These improvements give significant performance gains over previous versions in:

- CIE-based color conversion
- Image rendering
- Interpretation – This improvement is especially helpful for PDF files with transparency.
- Improved performance when processing 90-degree rotated images
- Smooth shading
- PDF-to-PostScript conversion

The elimination of unnecessary PDF-image decompression and compression has increased the performance of PDF-to-PostScript conversion for large image files.

A.10 Additional Enhancements

PDF Printing Library

- Adobe’s PDF processing code is now packaged as a separate library. This will allow IPTech to deliver incremental improvements in PDF printing functionality as they are developed.

- Updated Predefined CMaps

CMap files have been upgraded to the latest version compatible with Acrobat 6.0. Predefined CMaps enable printers, which do not include bundled CJK fonts to print PDF files that contain embedded CJK fonts

A.11 Extended Source List

In TurboRIP 3.0 the source list on disk can grow to 16GB. In previous releases it was constrained to 2 GB. Larger source lists permit easier handling of large or complex PDF or PostScript job files.

A.12 Standard TurboRIP Components

Flexible and modular, TurboRIP's components can be tailored to support any print job flow. TurboRIP's four main components are:

- The **TurboRIP Service** (which includes the Adobe CPSI and does the actual processing of PDF and PostScript files)
- The **TurboPainter Service** (which handles the outputting of bitmaps to the imagesetter or platesetter)
- The **TurboRIP GUI** (the graphical user interface or "GUI," which runs as a Java client). The GUI can be used to connect to any TurboRIP Service remotely as well as locally.
- The **TurboViewer application** (which enables post-RIP views of bitmap output files)

A.13 TurboRIP Service

The TurboRIP service processes PDF 1.3, 1.4 and 1.5, PostScript, EPS, JPEG and TIFF files create raster output in a variety of formats. It also supports drag-and-drop installation of PC format True Type and PFB fonts. Operating on Windows NT/2000 Servers and Windows XP Pro as a system service, TurboRIP is available whenever the system is running. There is no need to launch an application, or to start RIP inputs. It is not necessary to open the GUI to RIP jobs. Running as a robust system service, TurboRIP is ideally suited for unattended operation, and for automatic recovery from power outages or other disruptions.

IPTech has added value to the Adobe CPSI 3016 kernel by extending it to become part of a flexible job flow component. Perhaps the most important added feature is the ability to create an unlimited number of RIP Setups, each of which can be configured differently.

Different RIP Setups can be created for different kinds of output devices, or to specify different RIP settings to be applied to a single imagesetter or platesetter. RIP Setups can be configured to produce soft or hard copy previews, to print to proofing devices, to file formats, or to final output.

Many RIP parameters can be specified for each RIP Setup as defaults or overrides, including resolution, screening, separation, and trapping settings. TurboRIP provides enhanced screening controls, which include a wide choice of spot shapes and rosette types; and control over process and spot colour angles.

Each RIP Setup can have an unlimited number of inputs, either as Windows NT "pipe" inputs attached to Windows NT or 2000 printers, or through hot folders. Each RIP Setup can be configured to output to a specific folder, to a specified output device.



A.14 TurboPainter™

Acting as a high-speed print buffer, TurboPainter gives the user complete control over the output process. By taking over the output process, TurboPainter frees the TurboRIP module to RIP at full speed all of the time.

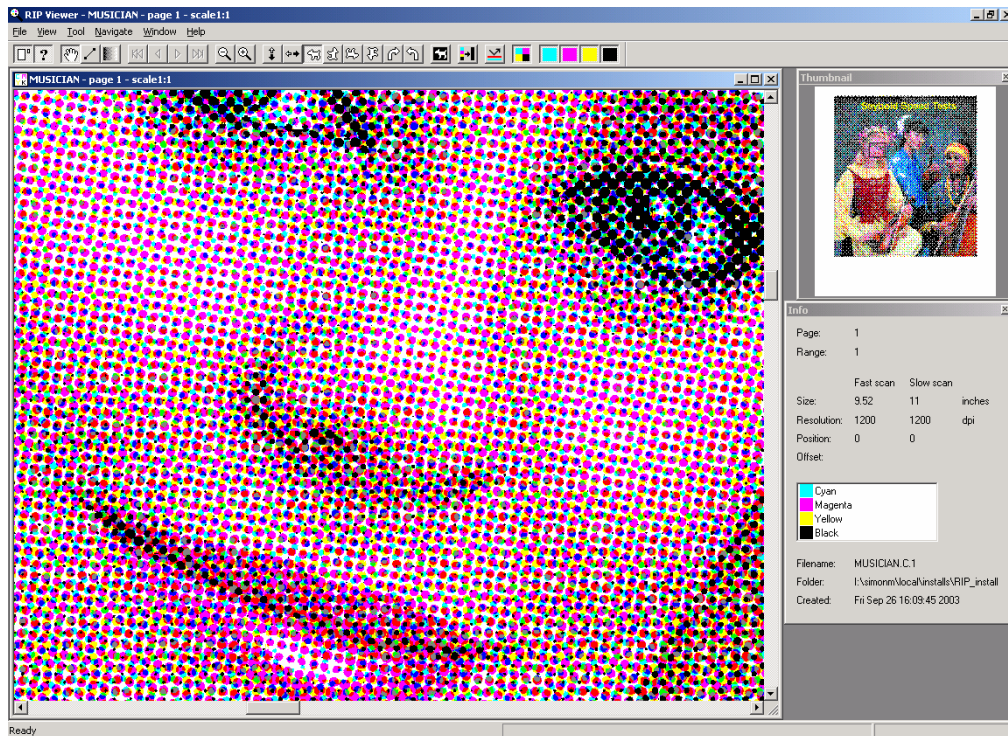
TurboPainter lets you access all jobs at the job, page, or separation level. Jobs may be paused, previewed, promoted, demoted, or cancelled from the intuitive TurboPainter Queue Manager. Bitmaps may be saved and resubmitted, allowing the user to re-output a job without re-RIPping it.

A.15 TurboRIP GUI

The TurboRIP user interface is a separate application, written in Java. The GUI can run on the same computer as the RIP Service or on another computer on the network or on many computers at once. This allows users to configure TurboRIP, send jobs, and monitor the RIP from a remote computer, so the output job flow can be controlled from anywhere on the network.

A.16 TurboViewer™

The TurboViewer application enables the user to see exactly how a file has been RIPped. There are many ways in which a file can image differently from the way it appears on-screen in applications such as QuarkXpress®, Adobe InDesign®, or Adobe Acrobat. TurboViewer allows the user to spot problems with content, layering, separation, screening, or trapping without wasting expensive media or critical production time. It includes tools to measure densities, and screen rulings and angles.



By previewing a RIPped file in the Viewer, the user can be certain that a file will image on the final output media the way the user wants it.

A.17 Adobe In-RIP Trapping Solution

Adobe's advanced In-RIP Trapping technology streamlines and simplifies the job flow, and increases productivity, by providing a consistent, automated trapping solution. Jobs are trapped automatically within the RIP, eliminating the need for extra production files or stages. By eliminating the need for specialized trapping applications or workstations, In-RIP Trapping removes one of the most common bottlenecks in other prepress job flows.

In-RIP Trapping traps all page elements, regardless of the original file type, and supports zone trapping, which allows for customized settings, and faster processing. TurboRIP supports trapping specified in the PDF or PostScript job, as well as customized trap settings configured for each RIP Setup.

IPTech has added Trapping Styles to Adobe's In-RIP Trapping solution. This feature enables a shop or a printer to standardize on settings created by a trapping expert. Custom trap styles—collections of custom settings that can be used over and over for entire documents or on a page-by-page basis—help reduce setup times and speed production throughput.

Quick View

- Robust, high-speed Raster Image Processor based on Adobe CPSI

- Supports Acrobat 4, 5 and 6 Transparency feature

- Enhanced performance on multiple CPU's

- Automated handling of oversized Jobs, including scale-to-fit, rotate-to-fit, or center-and clip-to-fit

- Interprets PDF 1.3, 1.4 & 1.5, PostScript, EPS, JPEG, and TIFF files

- Supports all common page layout applications

- Backward-compatible with earlier versions of PostScript

- Runs on Windows NT, Windows 2000 server and Windows XP Pro platforms; supports both Windows and Apple® Mac OS® clients

- Automatic creation of Macintosh and Windows Printers and hot folders

- Marks and labels can be added to pages

- Custom cache location

- Custom Default Font

- Drag-and-drop installation of Windows True Type and PFB fonts

- Full implementation of Adobe In-RIP Trapping, enhanced with IPTech Trapping Styles

- Outputs to file formats including 1-bit, 8-bit, and 24-bit TIFF

- Improved RIP Queue Manager

- Streamlined style-based Calibration and Tone Curve features

Access to mapped network drives

Job input via TCP/IP Socket

Intuitive, Java-based client-server GUI:

Enables any client on the network to configure, administer, and monitor the RIP

Provides full access to RIP controls, configuration, and calibration

Enables users to suspend, delete and re-prioritize jobs in the TurboRIP and TurboPainter queues

Multiple RIP Setups can be created for each output device

Innovative TurboPainter module allows full control over bitmap output, including:

Queuing – promote, demote, suspend, resubmit, and delete jobs

Previewing jobs at the job, page, or separation level

Full control of input and output queues

On-screen preview option of individual plates or CMYK composite pages

PDF Preview feature creates platform-independent post-RIP previews in PDF format

NT Proofer plug-in allows proofing to any device supported by Windows NT drivers

IPTech TurboScreening filter ensures moiré-free output

IPTech Hybrid Screening for improved highlight and shadow reproduction

IPTech Seamless Screening for printing continuous images

Provides Adobe Accurate Screens functionality for Postscript Level 1 applications

Includes Adobe Brilliant Screens, a stochastic screening technology

Quick, easily-customizable calibration tools

Real-time job reporting and status monitoring

Retrievable message log reports errors and records job statistics

System Requirements

Minimum

Pentium Pro 1.2 GHz

128 MB RAM

2 x 4 GB drives (one dedicated data disk)

Windows NT, 2000 Server plus Service Pack 4 and Windows XP

Recommended

Pentium IV series processor

512 MB RAM or more

2 x 4 GB drives or larger (one dedicated data disk)

Windows 2000 Server plus Service Pack 4