

Transform Your Print: Making Something New Out Of Something Old

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Agenda



- What are Transforms?
- Why use Transforms?
- Transform Inputs
- Transform Issues
- Where does the Transform run?
- Where does the Output go?
- Configuration and Execution
- What Doesn't Translate
- Summary

What Are Transforms?



- Convert Documents Between Page Description Languages (PDLs) or Image Formats
 - Typical PDLs
 - AFP, line data (text), PDF, PCL,
 PostScriptTM, LCDS/metacode
 - Common Image Formats
 - JPEG, TIFF, GIF, IOCA

Why Use Transforms?



- Repurposing: A different use than the original was created for
 - From print to web
 - Online bill presentment
 - email
 - From print to archive
 - Reprint for customer service or legal
 - content protected from alteration
 - From Print to Print
 - Merge unlike PDLs into single target stream

Why Use Transforms?





- Inexpensive printers don't print AFP or PostScriptTM
- Less expensive to print on fast AFP printer than inexpensive printers
- Viewing
 - AFP viewers are limited in function
 - Viewers for PCL, LCDS/metacode are expensive
 - PDF viewers are free

What Goes in?



- File or files to convert
- Resources
 - fonts, images, control information
- Setup instructions
 - describe, control, limit, define how the transform is work
 - define the output characteristics

Transform Output



- Transform Output: What Comes Out?
 - Text-based Output
 - Text is converted to a text form in the output PDL
 - Typically text characters in a font
 - Non-text converted to most similar format
 - Barcode to font, image, graphic
 - Image and graphics to image and graphics
 - Image-based Output
 - Document content converted to a single image

Transform Issues: Fidelity



- Fidelity: difference between original and converted page
 - Printing
 - Ideally, original and converted output should be identical
 - Can come close when converted to page images
 - Resolution may affect size, quality and aspect ratio

Transform Issues: Fidelity



- Text transforms limited by fonts and font metrics
 - Glyphs may differ due to font substitution
 - Line endings may move
- Resolution may affect appearance

Transform Issues: Fidelity

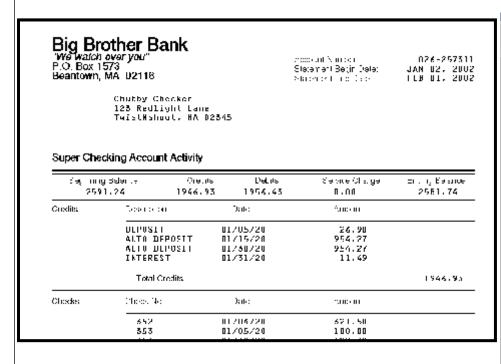


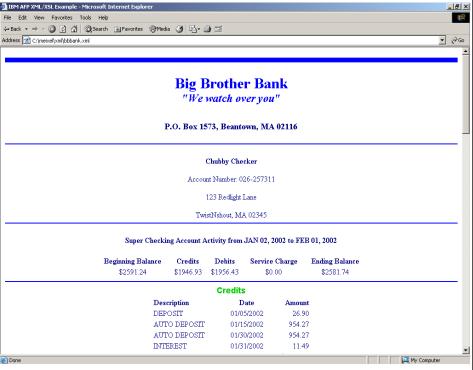
- Non-text objects may not transform identically
 - Barcode commands (e.g., AFP
 BCOCA) may be transformed to image or lines
 - Printer generates optimal barcodes, conversion might not scan
 - Image conversions may change appearance and color

Transform Issues: Fidelity RICOH InfoPrint Solutions

- AFP original for print
 - Uses printer fonts and rules
 - Heading layout for print and mailing
 - Fit to physical page

- Repurposed for the Web
 - Browser fonts and rules
 - Colored and live areas for navigation
 - Fit to browser window
 - · Column widths, alignment altered





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Transform Issues: Archive RICOH

Archive

- Document metadata may not be transformed
 - Metadata is information about a document
 - PDL may not support equivalent information,
 e.g., Indexes, tags, active content (URIs, links)
- Transform output must be complete with required resources
 - Some PDLs do not support external resource types
 - Archive system may require all resources inline

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Transform Issues: Web



- Web presentment
 - Document is repurposed
 - Live selection or other interaction
 - HTML cannot faithfully represent document appearance
 - Fonts, line spacing, image position
 - Pagination

Where Does The Transform Run?



- Pre-spool: between application and print system
 - For example, program creates AFP line data,
 but transform puts PDF on the spool
- Post-spool: between print system and printer
 - For example, program creates AFP line data but printer only prints PCL
- Stand-alone command
 - Command line or batch job

Where Does The Output Go? RICOH



- Output Destinations could be:
 - Spool
 - for printing
 - File
 - for further processing
 - Server
 - print, archive, mail
 - Printer

Configuration and Execution RICOH

- Performance
 - Pages per minute a useful measure
 - Transforms usually are CPU-intensive
 - Vendors seldom provide a measurement because they can vary widely depending on the data and system
 - Ask to test with your application

Configuration and Execution RICOH

- Single execution vs. Multi-threaded
 - Batch or automatic execution may transform pages or documents in parallel
 - Page-parallel systems distribute groups of pages to multiple processes
 - Usually each process runs on its own processor
 - Only PDLs with independent pages are candidates: PDF,
 AFP
 - Common in printer controllers
 - Some systems can run multiple different transforms or multiple instances in parallel
 - Dataset-parallel, not page parallel
 - Aggregate thruput higher, but same for a single document

Configuration and Execution: Font Resources



- Usually required
 - Fonts may be substituted or mapped
 - may not exactly match the original
 - encoding may not be the same
 - Or they may be converted
 - output file will be larger

Configuration and Execution: Image Resources



- Images and formatting resources must be supplied
 - How does transform require them?
 - Inline
 - In a directory

Configuration and Execution: Other Resources



- Name of formatting resources
 - Essential to correct conversion
 - FORMDEF, PAGEDEF
 - macros
 - Setup parameters
 - controls transform execution
 - affects output appearance

What Doesn't Translate RICOH

- Some PDL characteristics have no equivalent in another PDL
 - Indexes
 - "Foreign" objects
 - transform may convert
 - Color mapping and management
 - Control objects
 - setup files, configuration controls

In Summary...



- Know what the purpose of the output is
- Find out performance requirements
- Determine the level of fidelity
- Learn where all the parts needed for conversion are located
- Understand how to control output appearance



Questions??



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