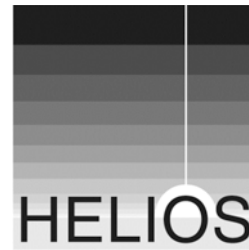


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**Integrating and automating HELIOS applications
with other server-based and client-based
applications, processes, and workflows**

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Integrating and automating HELIOS applications with other server-based and client-based applications, processes, and workflows

Synopsis

All HELIOS server solutions are designed for easy access by users via print queues, server network volumes, or hot folders. Administration is accomplished via the cross-platform HELIOS Admin, from any client on the network. Anything that can be accomplished via these user interfaces can also be fully automated via command line scripting. Every HELIOS process includes a command line interface for extensive customization, automation, and integration. In addition, HELIOS has developed technologies and tools designed to integrate and automate not only server-based solutions, but also client workstation-based applications. This allows the full integration and automation of HELIOS server solutions, together with 3rd party server and client applications, into a unified workflow.

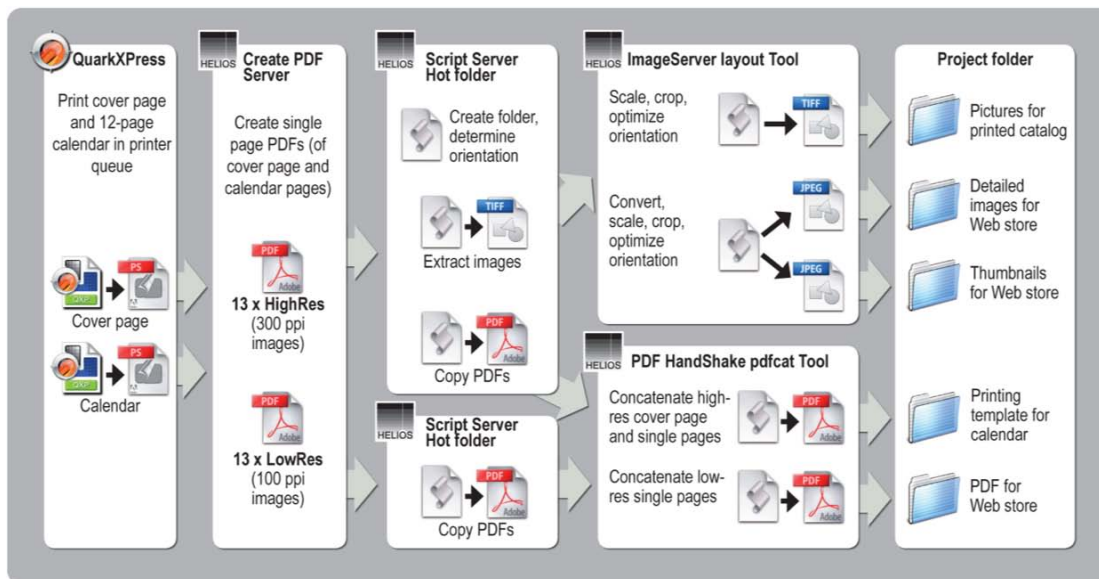
Examples

These capabilities lend themselves to many purposes, as shown in these customer examples:

Scenario – automated calendar production

Create PDF Server and Script Server are used for automated simultaneous production for print and web. The images for each calendar are automatically resized and color matched according to the specifications for each page, for both print and web use. This production workflow greatly improves efficiency, and reduces sources of error, saving the publisher 60% of production time. The investment paid for itself within a short time. For the full story (in German), see:

http://www.promo.de/helios/3-solu_0802kal.html



Automated calendar production

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Scenario – integration with Digital Asset Management (DAM) systems

The HELIOS image conversion engine and ICC color management support for images, InDesign and QuarkXPress documents, and PDF files provide the highest quality previews, and on-demand image conversion. The HELIOS event notification system alerts the DAM system of changes to files, enabling automatic catalog updates and synchronization. Script Server allows automation of server processes, tying together disparate solutions into a single workflow. And the new Tool Server allows automation and integration of client-based applications into the DAM solution.

Scenario – web-to-print image normalization and remote proofing

Remote users upload text and images into a web form. While an automated page layout application prepares the document, HELIOS ImageServer converts the images into a standard file format, color space, and resolution. A color matched proof is then generated by PrintPreview and WebShare for remote viewing and approval.

Your scenario – using the HELIOS server solutions and workflow automation tools, you can tie HELIOS applications together with 3rd party server and client based applications, to yield an integrated, automated workflow that optimally utilizes your resources and fulfills your needs. Here's how.

Documentation

The HELIOS Base manual contains installation instructions, and details features that are common to all HELIOS products. All other HELIOS product capabilities are documented in the respective product manuals. Default settings can be changed via HELIOS Admin or the “prefvalue” command. Additional settings can be specified via command line options for the various commands. It is important to review the “Setting up with HELIOS Admin”, “Utility programs”, and “Preferences” chapters for each product, to become familiar with the extensive customization features available.

Basic command line scripting

Every HELIOS procedure that can be performed via the user interface, can also be accomplished via the command line. Any shell script or scripting language can be used (HELIOS prefers Perl due to its cross-platform support) to automate a given HELIOS process. Of course, any other server process with command line support can also be automated in the same manner, and hence tied together with the HELIOS processes to form an integrated workflow. See the included sample printer scripts, Script Server scripts, WebShare action scripts, and the ImageServer “imageconv” script. They are ready-to-use, or can be used as samples for developing your own scripts.

Print queue automation features

HELIOS print queues can be used to print to a physical printer, to create and preflight a PDF, to generate a proof including separations and an ICC color-matched composite, and to queue jobs for printing according to a date and time schedule. “Balance Groups” perform load balancing. “Clone queues” duplicate jobs for simultaneous processing (e.g. to print to several laser printers) or repurposing

(e.g. create a prepress ready PDF, and a PDF for archiving, and a version for web browser users, each using the same original PostScript, but with the output resolution, color space, and compression optimized for each destination). In addition, using the “Hold Queue” feature, sequential job processing can be arranged. So if a proof is approved, the original PostScript can be moved to the final output queue. Or, if a PDF is created and passes its preflight test, it can automatically move to a queue for proofing or printing. In addition, “Print to Disk”, “Print Preview”, and “Create PDF” queues support a “Notify Program”, whereby a script or program is called for post processing. Job parameters such as job name, size, pages, users, printer, etc., are exported as environment variables.

Special HELIOS automation tools

HELIOS provides many tools to make integration and automation easier and more powerful.

- The HELIOS Service Controller “srvsrv”
Starts, stops and monitors all HELIOS server processes. Third party applications can integrate their services into the HELIOS Service Controller. See the Base UB+ manual, Chapter 14, “The Service Controller”.
- The notification server program “notifysrv”
“notifysrv” receives and distributes events (including file events) from processes and tools, and forwards them to the listening processes. “notifysrv” is the service used to trigger Script Server or other processes when a specific action occurs. This means that customizers can utilize “notifysrv” directly (via “socket”), or indirectly (via Script Server), to get event notification with very low system overhead and no latency (unlike polling), so there is no need to implement these low level services themselves. See the Base UB+ manual, Chapter 11, “The notification server”.
- “socket”
“socket” is a HELIOS utility similar to “telnet”, and is used to monitor HELIOS processes. “socket localhost 2002” is used by custom applications to monitor file change events reported by ImageServer. See the Base UB+ manual, Chapter 8.6, “socket”, and the ImageServer UB+ manual, Chapter 9.2, “Notification features”.
- Script Server
Script Server is the hot folder automation framework, with a GUI administrative interface. A single well written script can be used for many hot folders, by using environment variables for values that might be subject to change, such as a printer name, or ICC profile, or image resolution. Users or administrators can then easily use the HELIOS Admin Script Server interface to specify the folder to be enabled for that script, and enter any of the variables particular to that hot folder (once again, e.g. a printer name, or ICC profile, or image resolution). Users then simply need to move a file to the hot folder, and processing immediately proceeds. Script Server can recognize different file types, and execute a different script for each. Progress can be monitored via HELIOS Admin, the same as for a print queue. Script Server is often the only technology that needs to be used, even for extensive automation and integration of HELIOS and 3rd party applications. See the ImageServer UB+ manual, Chapter 7, “Script Server”, including 7.1.1, “Configuring a script

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queue", and 7.1.2, "Automatic Script Server configuration", as well as "HELIOS Script Server setup example"

<http://www.helios.de/viewart.html?id=762-en>, and

http://www.helios.de/web/EN/products/SS_scripts.html.

- Tool Server

HELIOS Tool Server allows automating and integrating applications running on network clients to be used by your HELIOS server. Many applications and technologies are only available on a specific platform, which may differ from the HELIOS server platform. Instead of reinventing these required applications and technologies, Tool Server makes them remotely available to your HELIOS server. Tool Server provides the infrastructure, and includes several useful tools – additional tools can be added by the user. HELIOS provided tools and samples are installed in minutes. Most any application that can be automated (via e.g. AppleScript, Automator, VBA, shell script, etc.), on any platform (e.g. Mac, Windows, Linux, etc.), can easily become a Tool Server tool. The "toolclient" application detects all servers automatically by using mDNS ("Bonjour") and chooses the server that offers the required service and provides best computing performance. Automatic job load balancing, file transfers, processing, auditing, and error handling makes it quite easy. The customer simply needs to write the application automation script, define a hot folder via Script Server, and Tool Server does the rest. Some of the sample Tools that are included:

- Convert HTML to PDF utilizing Apple's WebKit technology
- Create RGB bitmap previews of PDFs using Mac OS X rendering technologies
- Flatten PDF documents by automating Adobe Acrobat 8.1
- Launch a specified AppleScript
- Sharpen images using Photoshop
- Manipulate images using a Photoshop action macro

See the Tool Server UB+ manual:

<http://www.helios.de/support/manuals/TSUBplus-e/ts-html/Output/ToolServer-Titelseite.html>

- Bonjour (mDNS) support

Bonjour, also known as zero configuration networking, enables automatic discovery of computers, devices, and services on IP networks. The HELIOS mDNS server implementation ("mdnssrv"), can translate between names and addresses without a DNS server, and locate or advertise services without using a directory server. The HELIOS mDNS proxy server ("mdnsproxysrv") allows registrations for non-Bonjour devices, e.g. printers, websites, etc., and allows easy mDNS registrations for third-party applications. HELIOS Bonjour (mDNS) support is included for all HELIOS platforms. See the Base UB+ manual, Chapter 16, "mDNS (Bonjour)".

- HELIOS Admin

HELIOS Admin is a client application which allows easy administration of the HELIOS server. Due to its Java based design it can be used cross-platform on Windows, Mac OS X, Linux and UNIX clients. HELIOS Admin is the preferred interface for configuring HELIOS settings and monitoring print queues

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and Script Server queues. See the Base UB+ manual, Chapter 7, “HELIOS Admin”.

- “prefvalue”

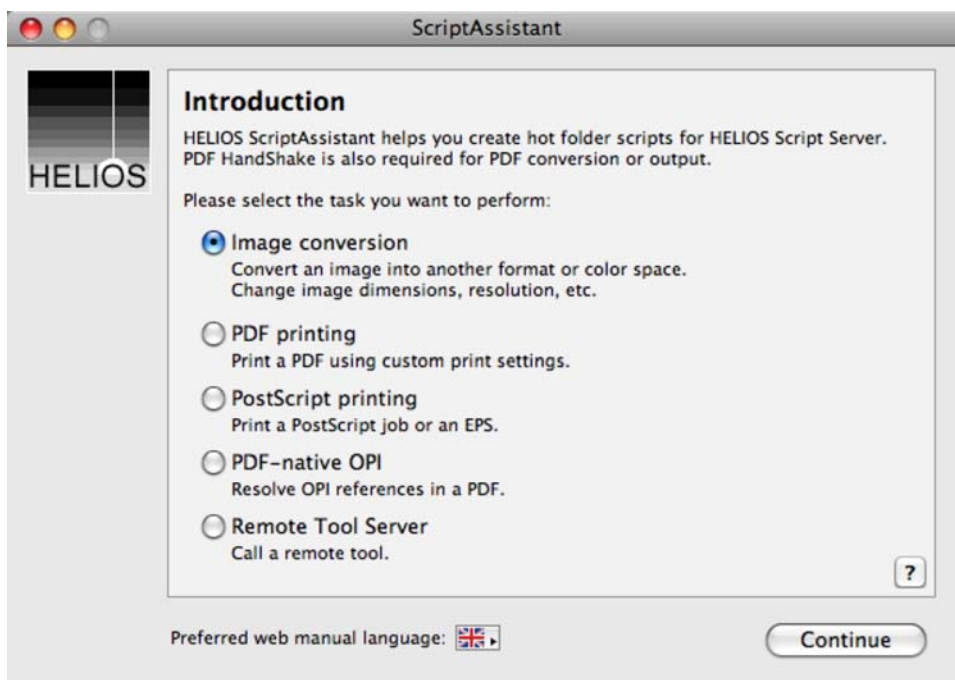
Some advanced settings (“preferences”) cannot be configured via HELIOS Admin. In that case, the “prefvalue” command can be used to set a preference. See the Base UB+ manual, Chapter 8.13, “prefvalue”, and the “Preferences” chapter in the manual for each product.

- “dt” tools

It is essential that all file management on a HELIOS volume use the “dt” tools. The “dt” tools mimic the functionality of major UNIX file handling commands, while maintaining the integrity of the desktop database. “dt” tools also provide access to Mac and Windows specific file information (e.g. resource fork and NTFS streams info) from a UNIX prompt. The “dt find” command searches for full or partial filenames in HELIOS volumes, and can optionally print the file ID. “dt find” searches the indexed desktop database, and hence is orders of magnitude faster than the UNIX “find” command, which traverses the file system. See the Base UB+ manual, Chapter 8.11, “dt tools”.

ScriptAssistant generates scripts

ScriptAssistant is a program for Mac and Windows that automatically generates Script Server scripts simply by selecting options – no scripting experience needed. Automating image conversion, PDF printing, PostScript printing, and PDF-native OPI is possible for any user. Even automation of client applications via HELIOS Tool Server requires only a few clicks. Simply select the desired options, and ScriptAssistant will create a Perl script, ready for use by Script Server.



ScriptAssistant for easy script creation

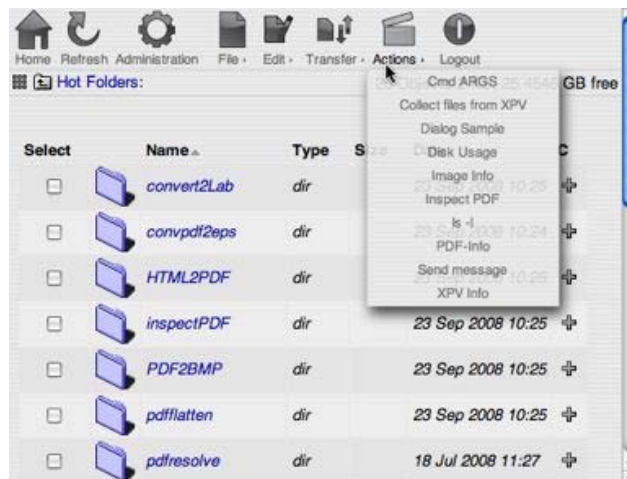
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Using Script Server and Tool Server hot folders

Once a hot folder is enabled via Script Server, it can be used automatically “behind the scenes”, whereby an application or process simply saves a file to that folder. Or, it can be used interactively, in which case an end-user saves a file in the hot folder, and optionally retrieves the desired output. Some scripts even parse folder names so users can specify settings, e.g. for image conversion (see “imageConvert” at http://www.helios.de/web/EN/products/imageconvert.html?lang_id=en).

Remote workflow support

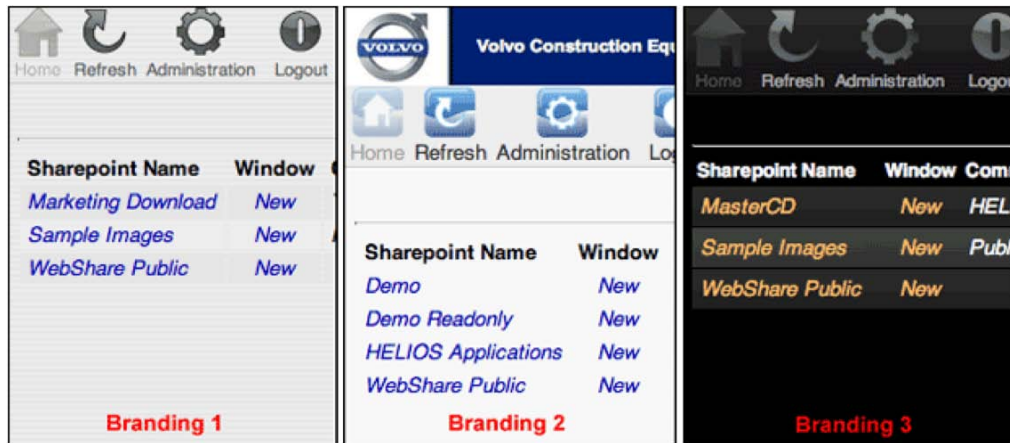
HELIOS includes support to publish printers and AFP and SMB/CIFS volumes for remote access via WANs, VPNs or the Internet. Some of the performance and security aspects are compared on the HELIOS web site, at: <http://www.helios.de/viewart.html?id=787-en>, and <http://www.helios.de/viewart.html?id=788-en>. However, for the best security and convenience for remote file management and workflow support, nothing beats HELIOS WebShare. Any Script Server process or workflow can become available to any authorized remote user, simply by making the corresponding hot folder available via WebShare. The authorized user then simply uses any web browser to log in, and transfer files to and from the hot folder. Nothing’s easier. In addition, WebShare also supports “Action Scripts”. Action Scripts are custom scripts or HTML forms that act upon the selected files or folders.



Remote hot folders and Actions menu in WebShare

WebShare also allows custom WebShare “brandings”, to present a personalized interface for each remote group or user. See the WebShare UB+ manual for details.

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Unlimited interface options via custom brandings

WebShare URL share access permits direct access to WebShare content, by means of special URLs that allow specifying image or document parameters for custom generated previews. They allow sharing document previews or directory listings from within any text document, e-mail or web application. The included “URL Share Access Helper” is a customizable HTML form that generates URL share access links without having to specify each desired parameter in the web browser’s URL address bar.

The screenshot shows the 'HELIOS WebShare UB+ URL Share Access Helper v1.0' form. It includes the following sections and fields:

- Instructions:** A paragraph explaining the form's purpose and usage.
- Copyright:** ©2007 HELIOS Software GmbH
- hide document description:** A link to toggle the document description visibility.
- Required Values:** Fields for 'WebShare Host' and 'Port' (optional).
- Required Parameters:** Fields for 'File Server' (pre-filled with 'localhost'), 'User' (pre-filled with 'demouser'), and 'Password' (optional).
- Path Parameters:** Fields for 'Sharepoint' and 'Path'.
- Image Parameters:** A section for image-related parameters, with a note '(if path points to an image file)'. This section is partially obscured by a scrollbar on the right.

URL Share Access Helper

Remote administrative support

HELIOS products are also designed with support for remote administration by a system administrator or integrator. “ipaccess” for HELIOS Admin can be set to allow specific remote users over the Internet. Any tasks not available via HELIOS Admin can be performed via an SSH terminal login.

Third party solutions

An alternative to developing your own custom integration and automation solution would be to use an already developed solution. A range of tools and solutions for integrating and automating workflow, backup and archiving, asset management, file conversion, and more are available. See the "HELIOS complementary solutions" page <http://www.helios.de/web/EN/products/3rd-party.html>, and "3rd party Script Server scripts" http://www.helios.de/web/EN/products/SS_scripts.html#3rd.

SQL desktop database engine

Advanced custom integration can also take advantage of the HELIOS SQL desktop database engine. Each HELIOS volume contains a desktop database that stores unique file/folder IDs and file meta data. The desktop database is compatible with AFP/SMB protocols and HFS/NTFS file systems. Because it is indexed, a file or folder search takes only seconds. The SQL desktop uses the underlying "Sqlite Version 3.2.1" database file format. HELIOS includes the command line "sqlite" tool. Modifying the SQL desktop database should only be done by experienced developers who know about SQL and the file/directory ID requirements within the HELIOS products. See the Base UB+ manual, Chapter 13, "The desktop server".

SDK

Almost all requested customizations can be accomplished via the options outlined above. However, there are a few instances in which the HELIOS SDK is needed to enhance and customize the HELIOS products. This would primarily be in cases where a new feature (e.g. an additional file format) needs to be added. The HELIOS SDK is available at http://www.helios.de/web/EN/support/develop_spec.html, and requires expertise with ANSI C and the Unix programming environment.

Don't forget security

HELIOS security is built in from initial product conception, it is not an afterthought. Extensive access controls can be specified to control access to services and files. Check the Base UB+ manual for an overview of security features, and the individual product manuals for product specific security options (e.g. port and ipaccess settings for services).

For additional assistance

End-users should contact their reseller or system integrator for initial assistance. Resellers can contact their regional HELIOS distributor. And 3rd party vendors can contact mktg@helios.de. Additional options are described in the Base UB+ manual, Chapter 20, "Technical support".

Other resources

A free 30 day Test Drive of the entire HELIOS Server Solutions suite can be downloaded from the HELIOS web site. Also on the web site are data sheets that list the features and benefits of each product. Additional web pages describe how HELIOS products work together to provide a range of solutions, and the industries that benefit.

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Summary

HELIOS provides a comprehensive infrastructure to enable extensive automation and integration of HELIOS solutions, as well as of 3rd party sever and client based applications. The HELIOS services provide high efficiency, speed, communications, and easy setup, so that most integration projects require only high-level scripts to automate each given process. HELIOS provides the low-level underpinnings, and ties everything together, for efficient, powerful, and versatile solutions.

Appendix 1

Command reference

The HELIOS “bin” directory includes over 60 HELIOS command line programs. End-users of course have no need to directly work with these programs, they simply access the HELIOS volumes, hot folders, and print queues that the system administrator has set up. However, it is advantageous for system administrators and integrators to be aware of the range of capabilities offered by these programs. The objective is for administrators, integrators, and developers to take maximum advantage of the HELIOS capabilities, while offering the greatest ease-of-use to the end-user.

atechoping	authutil	copy2x	dt	hirespath	htar
hupd	infocmp	layout	lcheck	license	locktable
lpc	lpq	lpr	lprm	lscm	machid
mail	mdnstool	oictable	oiimginfo	oiinfo	opitouch
pcadmin	pcfilter	pcsaddr	pdfcat	pdfform	pdfinfo
pdfnote	pdfprint	pdfresolve	pdftoeps	poll	prefdump
prefrestore	prefvalue	printerlog	psresolve	psrip	pstext
psyslog	serverlog	socket	sqlite	srvmsg	srvutil
start-helios	stop-helios	swwho	tic	toolclient	trc
uniconv	unzipstream	uwhat	vpoll	wounzip	zipstream
zones	pdfInspektor4				

All of these programs are documented in the HELIOS manuals, generally in the “utility programs” chapter of the corresponding product manual. Here are some of the programs most often used for automation and integration:

authutil	show information about users and groups, verify/change user passwords
dt	set of file management commands that are fully compatible with HELIOS volumes
hirespath	shows the paths of high-res images in OPI layout files or Post-Script jobs
htar	extracts and creates tar archives with HELIOS resource information
layout	specifies HELIOS image conversions, ICC color space transforms,

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	and meta data insertion/removal; also used to generate low-res layout files for OPI workflows
locktable	shows which files are locked by the HELIOS processes
lpr	HELIOS 'lpr', part of the HELIOS advanced printing system
mail	delivers e-mail to an SMTP server
mdnstool	lookup or register mDNS (Bonjour) settings
oiimginfo	prints information about a given image file, exports image meta data
opitouch	triggers OPI layout generation or ICC profile tagging
pdfcat	can concatenate, append, and explode PDF files
pdfform	outputs form field values of a PDF document
pdfinfo	prints information about a PDF document, or extracts objects from it
pdfInspektor4	PDF "preflight" application, for analyzing and preflighting PDF files
pdfnote	list, extract, or add annotations to a PDF document
pdfprint	prints PDF to PostScript, with extensive options
pdfresolve	raster image replacement in PDF files, with extensive options, for PDF-native OPI and content repurposing (e.g. ICC color matching)
pdftoeps	converts PDF to vector or raster EPS file
prefvalue	used to change "preferences"
printerlog	a tool to browse the printer.acct files in a human readable form
psresolve	used to set OPI parameters and print PostScript print jobs
psrip	generates ICC color matched proof of PostScript print jobs; also converts PostScript and vector EPS files to bitmap pages or images
pstext	allows printing ASCII text files to PostScript printers
psyslog	a tool to browse syslog entries
serverlog	a tool to browse the server.acct files in a human readable form
socket	cross-platform HELIOS utility similar to "telnet"; connects to and monitors HELIOS server ports
sqlite	used to administer the SQL desktop database; only for use by experienced developers who know about SQL and the file/directory ID requirements within the HELIOS products
srvmsg	sends a message to connected HELIOS clients; triggers the reconfiguration of a process; or starts live auditing of a process
srvutil	shows status of, starts, stops, and reconf HELIOS services
swwho	list all currently active HELIOS child server processes (users)
toolclient	finds, connects to, and sends/receives files to/from a tool server
uniconv	a Unicode conversion utility
zipstream / unzipstream	creates / extracts ZIP compressed archives on-the-fly

The ImageServer "layout" program deserves special mention, because it is the primary tool for image conversion. It is used to convert file format, color space, resolution, and compression. Its tagging feature is used to read, add, or remove meta data (ICC profiles, paths, clipping paths, XMP meta data, etc.). And "layout" can also be used to generate low-res layout files for OPI image replacement workflows.

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ImageServer also includes plug-ins and XTensions for Adobe InDesign and QuarkX-Press to generate multi-page document previews. These .xpv files also include details about the document, including page size and position, fonts, images, colors, and text blocks. See the “oiimginfo” command, and the WebShare “wsxpvinfo.pl” action script.

PDF HandShake includes the callas “pdfInspektor”, a powerful solution for analyzing and preflighting PDF files to ensure that incoming and outgoing PDF files are production compatible. About 800 PDF characteristics are checked, and the results can be displayed in different file formats.

Also of note: the Heidelberg CMM, co-developed by Heidelberg and HELIOS, is incorporated in all HELIOS prepress solutions, and is used for ICC color space transforms. This assures the highest quality, and fastest color space transforms, for image conversion, color-matched printing, and proofing, with the most advanced feature set:

- support for the latest ICC version 4 specification, and v4 profiles
- “HELIOS ICC Tagger” application tags ICC profiles to images
- Black Point Compensation (BPC) – preserves shadow detail in images
- Lab, CMYK, RGB, and Grayscale color spaces supported
- ICC rendering intents can be specified
- DeviceLink profiles supported
- detects and preserves pure colors during color transformations
- support for 16-bit per channel images
- HELIOS Admin – easy setup from Mac and Windows

Appendix 2

Example workflows

The HELIOS product suite provides the tools to create custom processes or workflows suited for many different purposes. Here are some examples:

PDF workflow – from PDF creation, to preflighting, color matching, proofing, and printing

Image conversion / ICC color management server / Content repurposing

Proofing – local and remote, hard copy and virtual

Secure file transfer / Remote workflow

Appendix 3

Digital Asset Management and Content Management integration options

Integrate your preferred DAM or CM product with these HELIOS features:

- ImageServer imaging engine and event notification server
creates image previews, and InDesign and QuarkXPress document previews

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converts image file format, resolution, compression, and/or color space
add or export image meta data
performs ICC color space transforms using the Heidelberg CMM
enables live synchronization of the DAM with the file system

- PDF HandShake
 - generates multi-page previews of PDF documents
 - converts PDF pages to image file formats (e.g. vector EPS, PNG, JPEG, etc.)
 - splits, rearranges, and concatenates PDF documents
- PrintPreview
 - rasterizes (RIPs) PostScript and vector EPS files to
 - create image previews and multi-page PostScript document previews
 - enable file format conversion to any ImageServer supported format

Features, by function:

- Additional image and document formats supported
- Content re-purposing
 - Highest quality ICC color space transforms
 - Fastest image conversion
 - Meta data (e.g. Photoshop path and clipping path) extraction/insertion
- Preview images
 - Faster preview generation
 - Multi-page InDesign and QuarkXPress document previews
 - Multi-page PDF and PostScript document previews
- Increased speed with LIVE Updates
 - when an asset is placed on the file system the DAM can immediately recognize the new file and make it available with previews and available metadata.