BERTL

EXCEPTIONAL

Xerox WorkCentre 7675

75-ppm Monochrome; 50-ppm Color

Print ▪ Copy ▪ Scan ▪ Fax

100% Independent Analysis

www.bertl.com

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OFFICE

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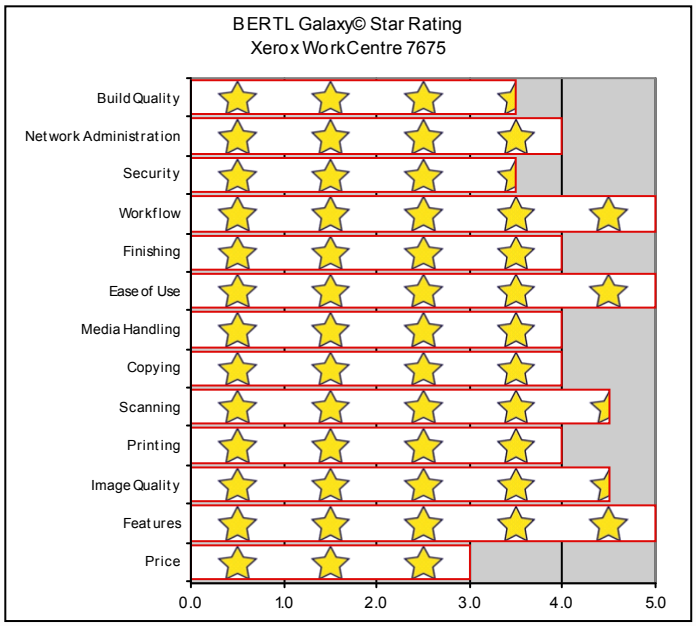

ABOUT BERTL'S GALAXY© STAR RATING

BERTL understands how difficult it is to choose one office-imaging device over another and exists to make this an easier choice for the consumer. That said, how does a consumer decide between two or more devices that carry the same BERTL 3-, 4- or 5-star rating?

Category-Criteria

Build Quality - An analysis of the construction quality of the major components that the user must interact with on a regular basis (e.g.: paper trays, access covers, supplies, etc.).

Network Administration - The quality of administrative and management utilities (both executable and Web-based) when compared to that of a sliding scale benchmark based on the network administration feature set of other vendors.

Security - A security feature-set analysis (removable hard disk, hard-disk overwrite, encryption, IP filtering, Microsoft Windows NT Authentication and LDAP lookup) when compared to a sliding scale benchmark based on the security feature set found on other devices.

Workflow - The quality of the network scanning, job submission, document management, sharpening and enhancement, file conversion and job layout tools based on a sliding scale benchmark when compared to the workflow tools employed by other devices.

Finishing - The productivity penalty (punch, staple, booklets) based on tests and finishing specifications and effectiveness based on a sliding scale benchmark when compared to that of other finishing systems found on other devices.

Ease of Use - Ease of maintenance (adding paper, toner, misfeeds, cleaning) and ease of using the documentation, help, control panel, print drivers and client utilities when compared to a sliding scale benchmark based on of the ease of use of other devices.

Media Handling - Throughput specifications and evaluations based on a sliding scale benchmark when compared with the handling of special media (e.g.: oversize, thick or coated stock) found on other devices.

Copying - Copy productivity based on tests and a feature-set analysis when compared to a sliding scale benchmark based on the feature set found on other devices.

Scanning - Simplex and duplex scan productivity and quality based on tests and a comparison of the overall scan and send feature set when compared to a sliding scale benchmark based on the feature set found on other devices.

Printing - Duplex and simplex print productivity based on tests and a printing feature set analysis when compared to a sliding scale benchmark based on the feature set found on other devices.

Image Quality - The quality of business color images (text, dot, line, halftone and solid quality) based on tests and a subjective rating on the quality of continuous tones (photos) when compared to a sliding scale benchmark based on the continuous tone quality produced by other devices.

Features - The feature set compared to a sliding scale benchmark based on the feature set found on other devices.

Price - MSRP of a system configured with network printing, copying, scanning, and two media trays/rolls (wide format) configuration.

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Introduction

In July 2007, Xerox refreshed its mid- to high-volume color office MFP family with the introduction of the WorkCentre 7655, 7665 and 7675 series. The WorkCentre 7675 is the fastest unit in the series at Xerox's rated print speed of 75/50 (monochrome/color) ppm. With its 50-ppm rated color print speed, it's designed to take on color print and copy volumes at resolution of up to 2,400 dpi.

The WorkCentre 7675's other features designed to support larger workgroups and a wide variety of applications include:

- Versatile paper handling—maximum paper size is 13" x19", and the system accept paper weight up to 170 lb. index (300 gsm). For high-volume copying applications, it provides a standard Duplexing Automatic Document Feeder with a very substantial 250-sheet paper capacity. Standard paper capacity is 3,260 sheets, and can be expanded to a generous 5,260 sheets for supporting larger workgroups.
- The WorkCentre 7675 can be equipped with a broad array of document-finishing options, supporting a variety of applications. These options include 3,000-sheet stacking, document-hole punching, multi-positioning stapling, V-fold booklet making, saddle-stitch booklet making, multi-positioning stapling, V-, C-, and Z- folding, and saddle-stitch booklet making).
- Network-scanning capabilities include scan-to-e-mail, computer desktop, and network file server, as well as the ability to convert scanned documents into searchable Adobe PDFs. The scan-and-distribute process can be automated with Xerox's optional SMARTsend scan-capture and distribution software.
- Broad platform support, with Microsoft Windows (including Vista) and Apple Macintosh compatibility.
- Extensive security features including network authentication, ID cards, encrypted printing, etc.

The system can be equipped with two black toner cartridges. Because users can replace one of the black cartridges while the system is printing, downtime is minimized.

The WorkCentre 7675 features Xerox's Extensible Interface Platform. This Web-based technology enables extensive customization, for instance, creating a custom scan-and-distribute workflow that can be accessed with just a touch of the customized touch screen.

Standard Internal Auditron and Xerox Standard Accounting for tracking, reporting and billing, as well as a host of third-party accounting and billing options.

Two versions of the WorkCentre 7675 are available: one version features standard digital copying with optional network printing, network scanning and walk-up fax, and lists at $28,000. A second version features standard digital copying, network printing, network scanning and optional walk-up fax and lists at $31,800. BERTL tested the second version. In the following test report, BERTL takes an in-depth look at the WorkCentre 5675, testing and evaluating its productivity, image quality, workflow and ease-of-use.

Xerox WorkCentre 7675 - Features Summary	
List Price	$31,800
Imaging Technology	Laser, electrostatic
Standard Functions	Digital Copier
Optional Functions	Network Printing, Network Scanning, Fax
Monthly Duty Cycle	300,000 pages
Mono Print Speed	75 ppm
Color Print Speed	50 ppm
Mono First Page Out Time	5.5 secs.
Color First Page Out Time	8.9 secs.
Automatic Duplex	Yes
Network Scanning	Yes
Color Scanning	Yes
NT Authentication	Yes
LDAP Compatibility	Yes
Hard Disk Overwrite	Yes

The Xerox WorkCentre 7675 as tested by BERTL.

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PRICING

Xerox WorkCentre 7675	
List Price	$31,800
Print Controller Options	Digital-copier configuration may be upgraded to network printer
Network Interface Options	USB 2.0
Media Input Options	2,000-sheet High Capacity Feeder (8.5" x 11" / A4)
Finishing Options	**Offset Catch Tray**; **Advanced Finisher**: (500-sheet top tray, 3,000-sheet stacker tray, 2/4*- or 2/3-hole punching, 50-sheet multi-position stapling); **Professional Finisher with Booklet Maker (**500-sheet top tray, 1,500-sheet stacker tray, 2/4*- or 2/3-hole punching, 50-sheet multi-position stapling, saddle-stitch booklet maker, bi-folding); **Light Production Finisher (**500-sheet top tray, 2,000-sheet stacker tray, hole punching, 100-sheet multi-position stapling, saddle-stitch booklet maker, bi-folding, 200-sheet post-process interposer, optional C- and Z-folding); **Convenience Stapler; Post Process Interposer**
Software Options	Xerox Global Print Driver; Xerox Mobile Express Driver; Xerox SMARTsend (server-based scanning and routing software); Scan to e-mail software; Scan to PC Desktop software; Scan to Mailbox software; Scan to searchable PDF, PDF/A and XPS software; Xerox Copier Assistant software; Xerox Office Fax Pro (1.0 server software - integrated, server-based fax for the desktop and Xerox MFPs); Xerox SMARTdocument Travel Express (entry-level document scanning for automating document-capture workflows); xl print Paris (VI, VDP, 1-1 marketing, transactional document creation and output management); Atlas Software PrintShop Mail (variable data printing); Captaris RightFax; Gravic Remark Office OMR software; Omtool AccuRoute (enterprise-level document capture, process and distribution); Pharos Uniprint, Blueprint, and Omega; Reportée SmartCover; SAP R/3 Device Types for Xerox Printers; Streem Alert; Streem Fax; X-Solutions ScanFlowStore
Print/Copy Management Options	A.N.D. Pcounter (print/copy management, auditing, accounting, reporting, cost-control, cost-recovery, secure print and pull-print); Xpert Image Xpert Billing (job-accounting software to control, track, bill print, copy, scan, fax jobs); Xerox SMart eSolutions (simplifies administration of Xerox devices; includes MeterAssistant and SuppliesAssistant); Control Systems Copitrak System; EFI SendMe; Equitrac Express (print-management software and cost recovery); Equitract Office, Professional; Pharos Uniprint, Blueprint, and Omega Document Accounting, Cost Management, Output/Print Management
Other Options	Foreign Device Interface, USB 2.0, Xerox Secure Access Unified ID System

*Four Hole Punch is a European Only Option.

SPECIFICATIONS

Print	
Black Print Speed	75 ppm
Color Print Speed	50 ppm
Black First Page Out Time	5.5 secs.
Color First Page Out Time	8.9 secs.
CPU	1.8 GHz Athlon CPU
RAM and Hard Drive	512 MB, 80 GB hard drive
Operating Platforms	**MS Win** 2000, XP, Windows Server 2003, Vista; **Citrix**; **Novell NetWare** 4.x, 5.x, 6; **Apple Mac** OS 8.x, 9.x, OS X, 10.3 and higher; **Solaris** 2.8, 2.9, 2.10, HPUX 11.0, 11iv2 AIX 5l v5.3; **Linux** RedHat Fedora 5, RedHat Enterprise Linux 4
Standard Print Drivers	PCL 6, PCL 5e, PS 3, TIFF (6.0 Old JPEG and New JPEG), TIFF Fax Extended (TIFF - FX) PDF, LCDS, SCS
Optional Print Drivers	XES and IPDS through 3rd-party transformers, Xerox Global Print Driver, Xerox Mobile Express Driver
Standard Interfaces	10/100 Base-TX Ethernet

Copy	
Black Copy Speed	75 ppm
Color Copy Speed	50 ppm
Black First Copy Out Time (Platen/DF)	5.5 secs.
Color First Copy Out Time (Platen/DF)	8.9 secs.
Job Build	Yes

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Copy	
Scan Ahead Copy	Unlimited
Copy Job Programs	Yes
Customizable Menus	Yes
Max/Min Zoom Ratio	25–400%/1% increments
Cover Insertion	Yes
Sheet Insertion	Yes
Page Stamp Options	Yes (includes Bates stamping in color)

Scan	
Maximum Scan Speed (B/W)	80 opm
Maximum Scan Speed (Color)	50 opm
Connectivity Options	No
Scan to e-mail	Yes
Scan to SMB	Yes
Scan to FTP	Yes
Scan to HDD	Yes
Scan to URL	Yes
Scan to Internet Fax	Yes
TWAIN Scanning	Yes
Scan to External Memory Source (Optical Drive/USB/SD card)	No
Network Authentication	Yes
LDAP Lookup	Yes
File Formats Supported	TIFF 6.0 with G3 MH, G4 MMR, or JPEG compression (single page or multiple pages), Adobe PDF (image only and searchable PDFs with G3 MH, G4 MMR, MRC, JPEG or JBIG2 compression), JIFF with JPEG compression, Microsoft XML Paper Spec (XPS)
Encrypted PDF Format	No
Ad hoc Subject Line Entry	Yes
Ad hoc Message Line Entry	Yes
Ad hoc File Name Entry	Yes
QWERTY-Style Input Keypad	Yes

Maintenance	
Black Toner Yield*	30,000 pages ($209)
Color Toner Yield*	34,000 pages ($419 each—cyan, magenta, yellow)
Fuser Life	Info. not available
User Replaceable Drum?	Yes
User Replaceable Waste Container?	Yes
User Replaceable Original/Paper Feed Rollers?	Yes

*Manufacturer's stated yield based on 5% page coverage.

Media Handling: Input	
Standard Media Capacity	3,260 sheets: 2x500-sheet paper drawers, 870-sheet paper drawer, 1,140-sheet paper drawer, 250-sheet bypass tray
Optional Media Supplies	2,000-sheet High Capacity Feeder (8.5"x11" / A4)
Maximum Media Capacity	5,260 sheets
Maximum Media Size (main trays)	11"x17"
Minimum/Maximum Media Weight (main trays)	17 lb. bond to 110 lb. index (64 to 220 gsm)
Maximum Media Size (bypass)	13"x19"
Minimum/Maximum Media Weight (bypass)	17 lb bond to 170 lb index (64 to 300 gsm)
Minimum/Maximum Media Weight (duplex)	Info. not available

Media Handling: Output/Finishing	
Standard Output Tray Capacity	Info. not available
Output Option(s)	Offset Catch Tray, Advanced Finisher, Professional Finisher with Booklet Maker, Light Production Finisher, Convenience Stapler, Post Process Interposer
Maximum Stapling Capacity	50 sheets
Maximum Stacking Capacity	3,500 sheets with Advanced Office Finisher
Maximum Saddle-Stitch Capacity	15 sheets
Hole-Punch Option(s)	Yes
Physical Mail Bin Option(s)	No
Folding Option(s)	Yes

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Media Handling: Output/Finishing	
Post Process Inserter Option(s)	Yes
PPI Capacity	200 Sheets

FEATURES

Accessibility	
Routine maintenance tasks performed at front of device	Yes
Remote control-panel software	Yes*
Audible “beeps” indicating error conditions	Yes
Control panel optimized for visually impaired	Yes*
Voice-recognition software	Yes*
Additional accessibility features	Yes*
Control panel tilts?	Yes

*Xerox provides optional software utilities for disabled users with its Copier Assistant Software Kit. This software enables users to remotely operate the control panel from a computer workstation. An enlarged touch screen provides easier visibility, while the embedded text-to-speech software talks the user through the copying steps, including advanced tasks such as stapling, collating and two-sided copying.

Security	
Hard-Drive Overwrite	Yes
Removable Hard Drive	No
Private Print	Yes
Encrypted Printing	Yes
Secure Fax	Yes
Encrypted PDF Send	Yes
Network Authentication	Yes
LDAP Authentication	Yes
Kerberos Authentication	Yes
SNMP	Yes
IPv6	Yes
SSL/TLS	Yes
IP Filtering	Yes
MAC Filtering	No
Other Security Features	Yes*

*Xerox’s optional Secure Access Unified ID System is a card-based user-identification system that requires users to swipe a personal identification card at the device in order to operate the system.

Other security features include Audit Log (indicates who sent jobs and when); SNMP V3 Embedded Fax (prevents unauthorized device access--there is complete separation of the fax telephone line and network connection; Secure Scan (transmits files using HTTPS (SSL)); and 802.1x Port Based Network Access Control (ensures that devices connected to the network have proper authorization).

Batch-Printing	
Multiple jobs all combined into a single finished document	Yes
Multiple jobs all combined into a single finished document with page numbering/watermarking added	Yes
Multiple jobs sent in collated sets	Yes
Multiple jobs sent in collated sets with finishing/job attribute changes on a job-by-job basis	No

Print-on-Demand	
Job Storage From the Device?	Yes
Job Storage From the Desktop?	Yes
Finishing Options Included at Time of Storage?	Yes
Document Images (incl. thumbnails) Provided on the Device Touch Screen?	No
Document Images (incl. thumbnails) Provided on the Desktop?	No
Multiple Jobs Can Be Combined and Printed as One Finished Job?	Yes
Stored Jobs Can Be Edited After Storage?	No

SOFTWARE

Client Software	
Print Drivers	PCL 6, PCL 5e, PS 3, TIFF (6.0 Old JPEG and New JPEG), TIFF Fax Extended (TIFF - FX) PDF, LCDS, SCS, XES and IPDS through 3rd-party transformers, Xerox Global Print Driver, Xerox Mobile Express Driver
Client Software	Xerox CentreWare Web
Desktop Software	No
Other Software	Opt. scan-and-distribute software

Device-Management Software	
Web-based device monitoring	CentreWare Internet Services, CentreWare Web

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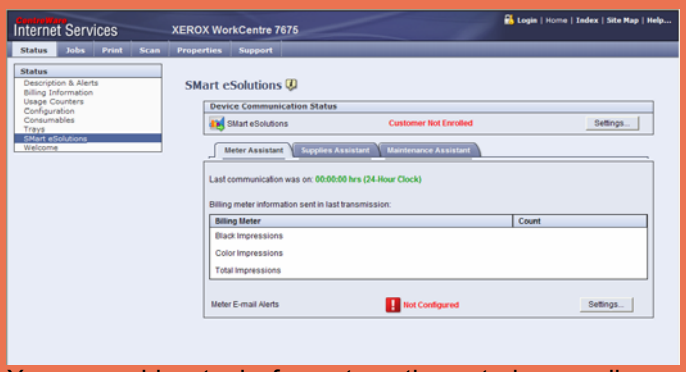
Device-Management Software	
Executable-based device monitoring	No
Group management of network devices	Yes
Monitor 3rd-party MIB-compliant network devices	Yes
HP Web JetAdmin compatible	Yes
Other Software	Xerox Page Accountant (control access to color output history—free download), Xerox CentreWare for CA Unicenter, Xerox CentreWare for HP OpenView, Xerox CentreWare for IBM Tivoli NetView, Xerox CentreWare for Microsoft Operations Manager, Xerox CentreWare for Microsoft System Center Operations Manager, Xerox CentreWare for Novell NDPS

PRODUCT HIGHLIGHTS

Xerox's optional Secure Access Unified ID System is a card-based user-identification system that requires users to swipe a personal identification card at the device in order to operate the system. In this way, administrators and managers can restrict use of the system only to authorized users.



Xerox provides tools for automatic metering reading and reporting (Meter Assistant), for monitoring and reporting supply needs (Supplies Assistant), and for monitoring and reporting maintenance needs (Maintenance Assistant). The Supplies and Maintenance Assistants can help administrators and service personnel minimize downtime by immediately alerting them when service or supplies are required.

Additionally, Xerox Standard Accounting allows administrators to track all device usage (copy/print/fax/scan) without any third-party software or peripherals. Administrators can run reports directly from the Web interface in order to determine device usage.

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BACKGROUND

Printing passed copying as the primary method of reproducing documents years ago. Today, printing is just as important—if not more important—than copying.

Connectivity

Most devices include Ethernet and USB connectivity out-of-the-box. Some devices also include a parallel interface. In addition, many devices provide a selection of optional connectivity choices such as Wireless 802.11b or g (g is the faster, preferred standard), Bluetooth for cell phone or PDA connectivity, PictBridge photo printing for printing directly from a digital camera, and FireWire for high-speed local connectivity.

Page Description Languages (PDLs)

PCL is the page description language (PDL) provided by most printer and MFP suppliers. Some manufacturers charge for a PostScript upgrade or provide a PostScript Level 3 emulation (clone). Still other manufacturers provide genuine Adobe PostScript Level 3 and bundle in PCL. A few manufacturers also include their own PDL, which are typically loosely based on the Microsoft Windows/GDI printing technology of old. These Windows or GDI drivers often offer significant productivity advantages over traditional PCL and PostScript print drivers, since the bulk of the processing is handled by the more powerful desktop PC, rather than by the less well-equipped printer processor itself.

Network-Bandwidth/Print File Sizes

	Native File Size	PCL	PS
1-page digital photo PDF	4.48 MB	14.20 MB	5.79 MB
4 page Passport Form PDF	0.08 MB	0.64 MB	0.51 MB
16-page Magazine in PDF	1.78 MB	15.00 MB	3.42 MB
22-page Excel Worksheet	0.12 MB	1.43 MB	1.43 MB
32-page Text-Based PowerPoint	0.23 MB	15.80 MB	2.43 MB
32-page Graphic Intensive PowerPoint	4.20 MB	37.30 MB	23.10 MB
38-page Form Word Document	0.91 MB	13.90 MB	10.70 MB
50-page Text-Based PDF	0.17 MB	1.81 MB	1.76 MB

PRODUCTIVITY

Evaluating print productivity is not as simple as timing copy jobs. The printing process involves several steps and can be affected by a variety of factors along the way.

The document must first be spooled by the print driver into a PCL or PostScript file. The PCL or PostScript file is then sent to the printer where it is raster image processed (RIPped) into image data by the device processor. The image data is then sent to the marking engine and output as printed pages.

There are three obvious factors highlighted above (spool time, RIP time, and print engine speed), which can all make or break a device's overall productivity. Other factors include concurrency and contention; for instance, print speed may slow down when the device is being used for other functions, such as scanning.

However, it is possible to time and compare these factors through the use of careful preparation, conditioning and testing. Following are charts that show printing performance when tested under controlled conditions.

First Page Out Time (seconds)

Job List	Media Size	PCL	PS
1-page photo print	Letter	47.60	46.65
4-page passport form PDF	Letter	43.10	45.50
16-page Magazine PDF	Letter	48.00	46.69
22-page Excel Worksheet	Letter	48.41	47.79
32-page text-based PowerPoint	Letter	43.98	44.53
32-page graphic-intensive PowerPoint	Letter	48.19	47.84
38-page Word form	Letter	44.78	45.16
50-page text-based PDF	Letter	44.25	44.56
50-page text-based PDF (duplex)	Letter	48.40	48.66

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Job Time (seconds)				
Job List	**Media Size**	**Mode**	**PCL**	**PS**
1-page digital photo print original	Letter	1:1	47.60	46.65
4-page passport form PDF	Letter	1:1	50.88	49.31
16-page Magazine PDF	Letter	1:1	66.85	65.09
22-page Excel Worksheet	Letter	1:1	73.22	69.37
32-page text-based PowerPoint	Letter	1:1	91.09	82.47
32-page graphic-intensive PowerPoint	Letter	1:1	86.53	86.00
38-page simplex Word form	Letter	1:1	98.66	102.32
50-page text-based PDF	Letter	1:1	103.78	102.82
50-page duplex text-based Adobe PDF	Letter	1:2	110.00	108.78

Duplex PCL Print Productivity Black-and-White Text (Pages Per Minute)								
	SETS							
PAGES	**1**	**3**	**5**	**10**	**20**	**30**	**40**	**50**
1	1.2	3.5	5.6	10.0	16.5	21.0	24.4	27.0
2	2.4	6.6	10.0	16.5	24.4	29.0	32.0	34.2
3	3.5	9.2	13.6	21.0	29.0	33.2	35.8	37.6
4	4.6	11.5	16.5	24.4	32.0	35.8	38.0	39.5
5	5.6	13.6	18.9	27.0	34.2	37.6	39.5	40.8
6	6.6	15.4	21.0	29.0	35.8	38.8	40.6	41.7
7	7.5	17.0	22.8	30.7	37.0	39.8	41.3	42.3
8	8.4	18.5	24.4	32.0	38.0	40.6	41.9	42.8
9	9.2	19.8	25.7	33.2	38.8	41.2	42.4	43.2
10	10.0	21.0	27.0	34.2	39.5	41.7	42.8	43.6
20	16.5	29.0	34.2	39.5	42.8	44.1	44.7	45.1
30	21.0	33.2	37.6	41.7	44.1	44.9	45.4	45.6
40	24.4	35.8	39.5	42.8	44.7	45.4	45.7	45.9
50	27.0	37.6	40.8	43.6	45.1	45.6	45.9	46.1

Simplex PCL Print Productivity Black-and-White Text (Pages Per Minute)								
	SETS							
PAGES	**1**	**3**	**5**	**10**	**20**	**30**	**40**	**50**
1	1.4	3.9	6.1	10.9	17.8	22.6	26.2	28.9
2	2.6	7.2	10.9	17.8	26.2	31.1	34.2	36.5
3	3.9	10.0	14.7	22.6	31.1	35.4	38.1	40.0
4	5.0	12.5	17.8	26.2	34.2	38.1	40.4	42.0
5	6.1	14.7	20.4	28.9	36.5	40.0	42.0	43.3
6	7.2	16.6	22.6	31.1	38.1	41.3	43.0	44.2
7	8.1	18.4	24.5	32.8	39.4	42.3	43.8	44.8
8	9.1	19.9	26.2	34.2	40.4	43.0	44.5	45.4
9	10.0	21.4	27.6	35.4	41.3	43.7	45.0	45.8
10	10.9	22.6	28.9	36.5	42.0	44.2	45.4	46.1
20	17.8	31.1	36.5	42.0	45.4	46.6	47.3	47.7
30	22.6	35.4	40.0	44.2	46.6	47.5	48.0	48.2
40	26.2	38.1	42.0	45.4	47.3	48.0	48.3	48.5
50	28.9	40.0	43.3	46.1	47.7	48.2	48.5	48.7

Simplex PostScript Print Productivity Black-and-White Text (Pages Per Minute)								
	SETS							
PAGES	**1**	**3**	**5**	**10**	**20**	**30**	**40**	**50**
1	1.3	3.8	6.1	10.9	17.9	22.8	26.4	29.2
2	2.6	7.1	10.9	17.9	26.4	31.4	34.7	37.0
3	3.8	10.0	14.7	22.8	31.4	35.9	38.7	40.6
4	5.0	12.5	17.9	26.4	34.7	38.7	41.1	42.7
5	6.1	14.7	20.5	29.2	37.0	40.6	42.7	44.0
6	7.1	16.7	22.8	31.4	38.7	42.0	43.8	45.0
7	8.1	18.4	24.7	33.2	40.0	43.0	44.6	45.7
8	9.1	20.0	26.4	34.7	41.1	43.8	45.3	46.2
9	10.0	21.5	27.9	35.9	42.0	44.5	45.8	46.7
10	10.9	22.8	29.2	37.0	42.7	45.0	46.2	47.0
20	17.9	31.4	37.0	42.7	46.2	47.6	48.3	48.7
30	22.8	35.9	40.6	45.0	47.6	48.5	49.0	49.3
40	26.4	38.7	42.7	46.2	48.3	49.0	49.3	49.6
50	29.2	40.6	44.0	47.0	48.7	49.3	49.6	49.7

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Duplex PostScript Print Productivity Black-and-White Text (Pages Per Minute)								
	SETS							
PAGES	1	3	5	10	20	30	40	50
1	1.2	3.5	5.6	10.0	16.6	21.2	24.6	27.3
2	2.4	6.6	10.0	16.6	24.6	29.4	32.5	34.8
3	3.5	9.2	13.6	21.2	29.4	33.7	36.4	38.3
4	4.6	11.5	16.6	24.6	32.5	36.4	38.7	40.3
5	5.6	13.6	19.1	27.3	34.8	38.3	40.3	41.6
6	6.6	15.4	21.2	29.4	36.4	39.6	41.4	42.5
7	7.5	17.1	23.0	31.1	37.7	40.6	42.2	43.2
8	8.4	18.6	24.6	32.5	38.7	41.4	42.8	43.8
9	9.2	19.9	26.0	33.7	39.6	42.0	43.3	44.2
10	10.0	21.2	27.3	34.8	40.3	42.5	43.8	44.5
20	16.6	29.4	34.8	40.3	43.8	45.1	45.7	46.2
30	21.2	33.7	38.3	42.5	45.1	46.0	46.4	46.7
40	24.6	36.4	40.3	43.8	45.7	46.4	46.8	47.0
50	27.3	38.3	41.6	44.5	46.2	46.7	47.0	47.2

Simplex Color PCL Print Productivity Microsoft PowerPoint (Pages Per Minute)								
	SETS							
PAGES	1	3	5	10	20	30	40	50
1	1.2	3.6	5.6	10.1	16.7	21.4	24.9	27.6
2	2.4	6.6	10.1	16.7	24.9	29.7	32.9	35.2
3	3.6	9.3	13.7	21.4	29.7	34.1	36.9	38.7
4	4.6	11.7	16.7	24.9	32.9	36.9	39.2	40.8
5	5.6	13.7	19.3	27.6	35.2	38.7	40.8	42.1
6	6.6	15.6	21.4	29.7	36.9	40.1	41.9	43.1
7	7.6	17.3	23.3	31.5	38.2	41.1	42.7	43.8
8	8.4	18.8	24.9	32.9	39.2	41.9	43.4	44.3
9	9.3	20.2	26.3	34.1	40.1	42.5	43.9	44.7
10	10.1	21.4	27.6	35.2	40.8	43.1	44.3	45.1
20	16.7	29.7	35.2	40.8	44.3	45.6	46.3	46.7
30	21.4	34.1	38.7	43.1	45.6	46.5	47.0	47.3
40	24.9	36.9	40.8	44.3	46.3	47.0	47.4	47.6
50	27.6	38.7	42.1	45.1	46.7	47.3	47.6	47.8

Simplex Color PostScript Print Productivity Microsoft PowerPoint (Pages Per Minute)								
	SETS							
PAGES	1	3	5	10	20	30	40	50
1	1.3	3.6	5.7	10.2	16.8	21.5	25.0	27.7
2	2.4	6.7	10.2	16.8	25.0	29.9	33.1	35.4
3	3.6	9.4	13.8	21.5	29.9	34.3	37.1	38.9
4	4.7	11.7	16.8	25.0	33.1	37.1	39.4	41.0
5	5.7	13.8	19.4	27.7	35.4	38.9	41.0	42.3
6	6.7	15.7	21.5	29.9	37.1	40.3	42.1	43.3
7	7.6	17.4	23.4	31.6	38.4	41.3	42.9	44.0
8	8.5	18.9	25.0	33.1	39.4	42.1	43.6	44.5
9	9.4	20.3	26.5	34.3	40.3	42.7	44.1	45.0
10	10.2	21.5	27.7	35.4	41.0	43.3	44.5	45.3
20	16.8	29.9	35.4	41.0	44.5	45.8	46.5	47.0
30	21.5	34.3	38.9	43.3	45.8	46.8	47.3	47.5
40	25.0	37.1	41.0	44.5	46.5	47.3	47.6	47.8
50	27.7	38.9	42.3	45.3	47.0	47.5	47.8	48.0

WHAT WE LIKED

- Tested color network productivity of up to 48 ppm in both PCL and PostScript modes.

WHAT WE WOULD LIKE TO SEE

- While overall, BERTL was satisfied with the WorkCentre 7675's printing capabilities, we would like to see somewhat faster First Page Out Times (FPOTs) and faster black-and-white printing speeds.

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BACKGROUND

Nearly all MFPs on the market today provide digital copying, while many desktop printers offer it as an option. Despite the fact that many devices provide a wide range of digital-copying capabilities, from image manipulation to page insertion, most typical copy jobs actually consist of a single set of a simplex document that is five pages or less, with no finishing, and no image-quality manipulation.

Small Simple Jobs

Although most MFPs provide a wide range of copying features, most users are not willing to navigate through countless screen menus in order to get to the point where they can actually press the *Start* key. There are two components of copy-job productivity: 1) user productivity, and 2) device productivity. BERTL encourages enterprises to also consider the impact of *user* productivity, along with device productivity. Device productivity only includes the time it takes from the press of the *Start* key until the final copy exits the device, and does not take into account the time that it takes a user to program and start the copy job. However, the easier the job, the easier it is to program; users will also take less time to program jobs as they acclimate to the controls and/or create job programs. And, of course, some users are more astute and capable than others. Consequently, these uncontrolled factors introduce a high degree of variability. However, of course, a device that takes twice as long to produce the first copy affects the job productivity of each and every user and job.

Large, Complex Jobs

Even with large copy jobs—where it seems engine speed plays the largest role—user productivity should be taken into account. For example, the user is less likely to wait at the copier for larger and more complex jobs. Factors that enhance user productivity include such features as easy job programming; a scan-ahead feature so that users can program and scan jobs while other jobs are printing; fast original scanning so that users can more quickly return to their desks with their originals; the ability to build a job using a mix of different-size originals scanned from both the document feeder and platen; and job notification at the computer desktop when the copy job is completed (thus eliminating the guesswork of when to return to the copier to collect the job).

The WorkCentre 7675's platen. The system is also equipped with a standard 250-sheet duplexing automatic document feeder.

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PRODUCTIVITY

Advertised speeds are always quoted using the simplest route—in-and-out of a device. Of course, users often apply finishing options, incorporate different media sizes and types into the document, print in duplex, and add other elements that can affect speed. In the chart below, BERTL tests how different modes—mixed-size original mode and duplex mode—affect document-feeder productivity.

In order to assess copier productivity, BERTL ran a series of copy jobs in order to determine document-feeder scanning speed, the affect of the first set out on overall engine speed, and whether specific job attributes affect engine throughput capability. Each job was set up by feeding media from the shortest media route to the shortest available output destination. A separate test examines how adding finishing/output destinations affects productivity.

First Copy Out Time*	
	Black-and-White Mode
Number of Originals	Seconds
1 Simplex Original	13.57
2 Simplex Original (Duplex Model)	15.70
	Color Mode
1 Simplex Original	13.50
2 Simplex Original (Duplex Model)	20.78

*Using the automatic document feeder.

Copy Job Time			
# of originals	**Monochrome Mode**	**Time In Seconds**	**CPM**
10	1 sided to 1 sided	24.12	24.9
10	1 sided to 2 sided	26.69	22.5
10	2 sided to 1 sided	42.06	14.3
10	2 sided to 2 sided	37.90	15.8
# of originals	**Color Mode**	**Time In Seconds**	**CPM**
10	1 sided to 1 sided	31.38	19.1
10	1 sided to 2 sided	41.47	14.5
	Auto Color Mode		
10	1 sided to 1 sided	31.41	19.1

Simplex Black-and-White Copier Productivity (Pages Per Minute)								
	SETS							
Pages	**1**	**3**	**5**	**10**	**20**	**30**	**40**	**50**
1	4.4	11.3	16.4	24.9	33.5	37.8	40.5	42.2
2	8.1	18.5	24.9	33.5	40.5	43.5	45.2	46.3
3	11.3	23.5	30.0	37.8	43.5	45.8	47.0	47.8
4	14.0	27.2	33.5	40.5	45.2	47.0	48.0	48.6
5	16.4	30.0	36.0	42.2	46.3	47.8	48.6	49.1
6	18.5	32.2	37.8	43.5	47.0	48.3	49.0	49.4
7	20.4	34.0	39.3	44.5	47.6	48.7	49.3	49.7
8	22.0	35.5	40.5	45.2	48.0	49.0	49.5	49.9
9	23.5	36.8	41.4	45.8	48.3	49.3	49.7	50.0
10	24.9	37.8	42.2	46.3	48.6	49.4	49.9	50.1
20	33.5	43.5	46.3	48.6	49.9	50.3	50.5	50.6
30	37.8	45.8	47.8	49.4	50.3	50.6	50.7	50.8
40	40.5	47.0	48.6	49.9	50.5	50.7	50.8	50.9
50	42.2	47.8	49.1	50.1	50.6	50.8	50.9	51.0

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Duplex Black-and-White Copier Productivity (Pages Per Minute)								
	SETS							
Pages	1	3	5	10	20	30	40	50
1	3.8	9.8	14.2	21.4	28.7	32.4	34.6	36.1
2	2.4	16.0	21.4	28.7	34.6	37.2	38.6	39.6
3	3.6	20.2	25.8	32.4	37.2	39.1	40.2	40.8
4	4.6	23.4	28.7	34.6	38.6	40.2	41.0	41.5
5	5.6	25.8	30.8	36.1	39.6	40.8	41.5	41.9
6	6.6	27.7	32.4	37.2	40.2	41.3	41.9	42.2
7	7.5	29.2	33.6	38.0	40.6	41.6	42.1	42.4
8	8.4	30.4	34.6	38.6	41.0	41.9	42.3	42.6
9	9.2	31.5	35.5	39.1	41.3	42.1	42.4	42.7
10	10.0	32.4	36.1	39.6	41.5	42.2	42.6	42.8
20	16.2	37.2	39.6	41.5	42.6	42.9	43.1	43.2
30	20.5	39.1	40.8	42.2	42.9	43.2	43.3	43.4
40	23.7	40.2	41.5	42.6	43.1	43.3	43.4	43.4
50	26.1	40.8	41.9	42.8	43.2	43.4	43.4	43.5

Simplex Color Copier Productivity (Pages Per Minute)								
	SETS							
Pages	1	3	5	10	20	30	40	50
1	4.4	10.3	14.0	19.1	23.4	25.3	26.4	27.1
2	7.7	15.4	19.1	23.4	26.4	27.5	28.2	28.5
3	10.3	18.4	21.8	25.3	27.5	28.4	28.8	29.1
4	12.3	20.4	23.4	26.4	28.2	28.8	29.1	29.4
5	14.0	21.8	24.5	27.1	28.5	29.1	29.4	29.5
6	15.4	22.8	25.3	27.5	28.8	29.3	29.5	29.6
7	16.5	23.7	25.9	27.9	29.0	29.4	29.6	29.7
8	17.5	24.3	26.4	28.2	29.1	29.5	29.7	29.8
9	18.4	24.9	26.8	28.4	29.3	29.6	29.7	29.8
10	19.1	25.3	27.1	28.5	29.4	29.6	29.8	29.9
20	23.4	27.5	28.5	29.4	29.8	29.9	30.0	30.0
30	25.3	28.4	29.1	29.6	29.9	30.0	30.1	30.1
40	26.4	28.8	29.4	29.8	30.0	30.1	30.1	30.1
50	27.1	29.1	29.5	29.9	30.0	30.1	30.1	30.1

Duplex Color Copier Productivity (Pages Per Minute)								
	SETS							
Pages	1	3	5	10	20	30	40	50
1	2.9	6.9	9.6	13.6	17.2	18.8	19.7	20.3
2	5.1	10.7	13.6	17.2	19.7	20.8	21.3	21.7
3	6.9	13.0	15.8	18.8	20.8	21.5	21.9	22.2
4	8.4	14.6	17.2	19.7	21.3	21.9	22.2	22.4
5	9.6	15.8	18.1	20.3	21.7	22.2	22.4	22.6
6	10.7	16.7	18.8	20.8	21.9	22.3	22.5	22.7
7	11.6	17.4	19.3	21.1	22.1	22.4	22.6	22.7
8	12.3	17.9	19.7	21.3	22.2	22.5	22.7	22.8
9	13.0	18.4	20.1	21.5	22.3	22.6	22.8	22.8
10	13.6	18.8	20.3	21.7	22.4	22.7	22.8	22.9
20	17.2	20.8	21.7	22.4	22.8	22.9	23.0	23.0
30	18.8	21.5	22.2	22.7	22.9	23.0	23.1	23.1
40	19.7	21.9	22.4	22.8	23.0	23.1	23.1	23.1
50	20.3	22.2	22.6	22.9	23.0	23.1	23.1	23.1

Document Feeder Productivity

BERTL also takes the user into account and looks at how document-feeder productivity affects the amount of time a user has to wait at the device before they can walk away with their originals.

Document Feed Speed			
# of originals	MONOCHROME MODE	Time In Seconds	OPM*
11	Simplex Originals	12.00	50.0
5	Duplex Originals	24.28	12.4
11	Mixed-Size Originals	19.53	30.7
	COLOR MODE		
11	Simplex Originals	15.91	37.7
5	Duplex Originals	24.37	24.6

*Originals per minute.

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Document-Finishing Penalty				
# of originals	**Finishing Selection**	**Time In Secs**	**1 Set Time (Secs)**	**Penalty Per Set (Secs)**
10/5	Corner Staple	104.46	31.75	1.53
10/5	Side Staples	90.35	28.93	0.48
8/5	Saddle-Stitch Booklet	147.53	40.36	1.62
10/5	Covers and Inserts	150.91	41.04	3.38

WHAT WE LIKED

- Tested FPOT as fast as 13.50 seconds in copier mode.
- Minimal document-finishing penalty, so that productivity will not be affected when applying document finishing to copy jobs.

WHAT WE WOULD LIKE TO SEE

- While overall, BERTL was satisfied with the WorkCentre 7675's copying capabilities, we would like to see somewhat faster black-and-white copying capabilities.

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BACKGROUND

In just a few years, network scanning has changed from being a "luxury" function to one that is virtually essential.

Indeed, today, nearly all MFPs provide standard or optional network scanning, including scan-to-e-mail. This makes document-feeder design even more critical, with users looking for document feeders with higher feeding speeds, low–resolution capabilities, as well as for MFPs with more versatile scanning, and color-scanning capability.

Address Book Integration

MFPs' ability to integrate their scanning addresses book with central corporate address book located on LDAP or Microsoft Windows NT network servers is the current *de facto* standard. The ability to force-populate outgoing e-mail from the MFP with sender information through an enforced login process is also required (i.e., senders must enter their network password before they can use the MFP's scan-to-e-mail).

Destinations

Most MFPs' network-scanning capabilities include the ability to scan-and-send to e-mail addresses, SMB destinations (Windows desktop locations), FTP (File Transfer Protocol) sites, and Internet fax destinations. In some instances, the scanned document goes directly to the MFP's hard drive, and an e-mail is sent to the recipient with a URL link. By navigating to the URL link, the recipient can quickly access the scanned file from the device's hard drive. Also of note is that a growing number of devices are beginning to include external media ports to allow users to scan and send documents to USB flash memory devices and digital-camera SD chips. We expect this to become more common over the next year.

Security

Security is another critical aspect of scanning. Several MFPs now include the ability to send scanned messages using encrypted PFD or other secure-transfer formats. This is an important capability in industries and sectors where data must be kept secure and confidential. Most devices also support network authentication, so that users must log into their device (usually with their network password) before they scan.

Integration with Third-Party Applications

The big buzz in the office digital-imaging industry is the move toward open architecture, with the MFP's firmware backbone based on an industry standard such as Java or .NET rather than on a proprietary system.

WHAT WE LIKED

- Extensive network scanning capabilities, including scan to file, network server/directory, to Windows XP client via Windows Image Acquisition (WIA) or TWAIN driver, e-mail addresses, Microsoft Exchange public folders and scan to computer workstation. Optional capability enables users to scan documents and convert them into searchable Adobe PDFs; searchable PDFs makes the task of locating and retrieving documents much easier.
- Fast document routing with "Scan to Home," which allows scanning to pre-assigned "home" destinations — such as an e-mail address, network folder or FTP directory — for fast document routing at the push of a button.
- Xerox' Extensible Interface Platform (EIP) enables development of custom applications from the touch screen—for instance, with a single press of the touch screen, users could automatically apply pre-set scanning settings and route documents to pre-determined locations. This is especially advantageous when enterprises have frequent high-volume scanning and document-distribution tasks.

WHAT WE WOULD LIKE TO SEE

- Overall, BERTL was very satisfied with the WorkCentre 7675's network-scanning capabilities.

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IMAGE QUALITY

BERTL evaluates the output of several "test targets" in order to determine image quality. Following are descriptions of key elements of image quality. Note the numbered examples on each of the test targets shown in the right column.

Office Color Image Quality

1. **Density of Solid Areas -** Better contrast; more vivid overall images
2. **Line Work -** Better production of lines and text
3. **Halftones -** Better production of photographic and screened images
4. **Negative/Positive -** Better production of fine detail

Photographic Color Image Quality

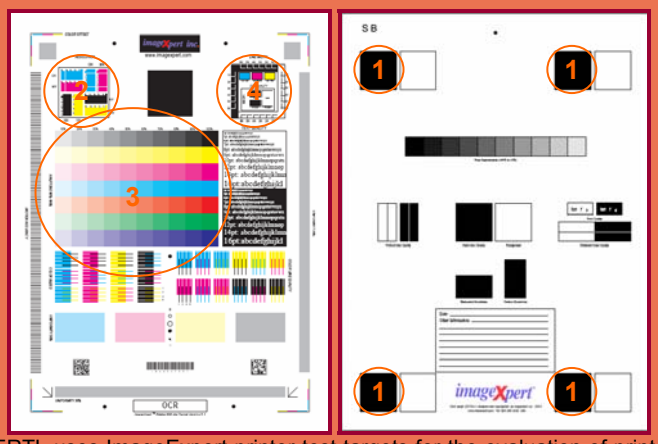
5. **Flesh tones -** Better production of portraits
6. **Banding -** Better solid and dithered fill
7. **Low Contrast -** Better production of dark images
8. **Saturation -** Better production of bright colors
9. **Caste** – Better color fidelity
10. **Fine Detail** – Better reproduction of fine details

Density of Solid Areas*		
	Copy Density	**Print Density**
Black	1.46	1.76
Cyan	1.40	1.47
Yellow	1.03	0.78
Magenta	1.42	1.08

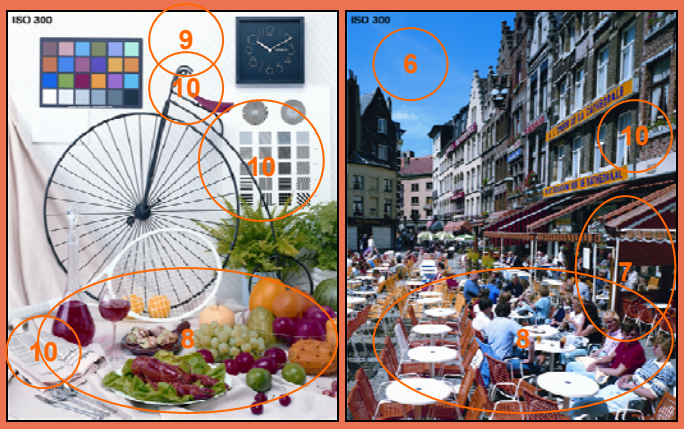
*Density is on a scale of 0 to 2.5, with 2.5 being the best possible.

Copy & Print Resolution*				
	Copy Resolution		**Print Resolution**	
	Vertical	Horizontal	Vertical	Horizontal
Black	5.0	5.0	2.0	2.0
Cyan	--	--	2.0	2.0
Yellow	--	--	2.0	2.0
Magenta	--	--	2.0	2.0

*Line Pairs per Millimeter. For copy resolution, higher is better (range, 2.0-8.0); for printer resolution, lower is better (range, 1.0-5.0).



BERTL uses ImageExpert printer test targets for the evaluation of printed image quality. BERTL technicians' measure image density and evaluate the device's ability to produce a full range of halftones and various sizes of negative/positive text, dots and lines in each primary printing color (CYMK).



BERTL uses synthetic (photographic) test images obtained from **ISO International Standard 12640--Graphic Technology—Prepress digital data exchange—CYMK Standard Color Image Data (CYMK/SCID)** in order to evaluate the ability to print photographic images.

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IMAGE QUALITY

Print Halftones		
	Min. Gradation*	Max. Gradation**
Black	10	100
Cyan	10	80
Yellow	10	100
Magenta	10	100

*Minimum gradation is on a scale of 10 – 100 percent in 10 percent increments. The best possible minimum gradation is 10 percent. **Maximum gradation is on a scale of 10 – 100 percent in 10 percent increments. The best possible maximum gradation is 100 percent.

Copy Halftones		
	Min. Gradation*	Max. Gradation**
Black	10	100
Cyan	10	80
Yellow	20	80
Magenta	10	90

*Minimum gradation is on a scale of 10 – 100 percent in 10 percent increments. The best possible minimum gradation is 10 percent. **Maximum gradation is on a scale of 10 – 100 percent in 10 percent increments. The best possible maximum gradation is 100 percent.

Negative/Positive Lines*				
Line Width (points)	Negative		Positive	
	Vertical	Horizontal	Vertical	Horizontal
1	√	√	√	√
2	√	√	√	√
3	√	√	√	√
4	√	√	√	√
5	√	√	√	√
6	√	√	√	√

A "√" mark indicates the device was able to print the line width correctly.
*Chart cells containing an "x" indicate that the printer was not able to print the line width correctly. Overall, the fewer "x's," the better the image quality. If no cells are marked with an "x," then the device was able to print all line widths correctly.

Negative/Positive Dots*	
Line Width (points)	% of Dots Printed
1 pixel Cyan	100
1 pixel Magenta	100
1 pixel Yellow	100
1 pixel Black	100
1 pixel Black Neg	100
2x2 pixel Black	100
2x2 pixel Black Neg	100
Checkerboard apparent?	No

*On a scale of 0 – 100%. The higher the percentage, the better.

Photo Quality*	
Fleshtones	4.0
Banding	4.0
Low Contrast	4.0
Saturation	4.0
Caste	4.0
Fine Detail	4.0

*Based on a scale of 1-5, with 5 being the best.

WHAT WE LIKED

- Output displayed outstanding black print density and very good cyan, magenta and yellow print density in printer mode.
- Output displayed outstanding black, cyan, yellow and magenta print density.
- In network-printer mode, output displayed above-average resolution in all four colors (black, cyan, yellow and magenta).
- Output displayed above-average reproduction of halftones in both printer and copier modes.
- Output displayed outstanding line and dot control, which is essential for producing fine detail.
- Output displayed well above-average production of photographic images.

WHAT WE WOULD LIKE TO SEE

- Overall, BERTL was very satisfied with the Xerox WorkCentre 7675's image quality.

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PROGRAMMING THE CONTROL PANEL

Visit a few MFP manufacturers' showrooms, and you will see a wide range of control panels and touch screens. The most rudimentary consist of a selection of hard keys and an LCD screen that can often be challenging to navigate. On the other hand, some control panels that utilize hard keys and LCD screens can actually be easier to use than touch screens. However, hard-key/LCD panel systems that require users to scroll through various settings and make a selection can also often be challenging to use.

Among touch screens, some utilize a menu-driven system, while others utilize an icon-based system. Some menu-driven touch screens can involve many complicated sub-menus that can be difficult to navigate.

Most manufacturers try to keep their control panels and touch screens consistent across their MFPs and printers, so that users do not have to spend time learning how to use a new control panel when moving from device to device.

A control panel's ease of use—or lack of—can often have a significant affect on user productivity. The harder it is to select frequently used options such as duplexing, document finishing, etc., the more time the user has to spend programming the device and the less productive they are. In the chart to the right, BERTL assesses how many steps are required to make these commonplace settings.

Selections Required for Frequently Used Copy Functions	
Corner Staple	1
1:2	1
2:2	1
Photo Mode	3
Copied Front and Rear Covers	6
Reduce to 64%/78% (A3/A4)	2

The WorkCentre 7675's control panel is vertically mounted, and can be tilted for easier viewing. A vertically mounted control panel is generally easier to use than conventional horizontally mounted control panels because it eliminates having to bend over the device. The control panel consists of a tiltable touch screen and hard keys. As with nearly all Xerox touch screens, BERTL found the control panel exceptionally easy to use and the touch screen a breeze to navigate. The touch screen uses a very easy to use tab system, and text is large and easy to read, Xerox has really perfected making control panels very easy to use.

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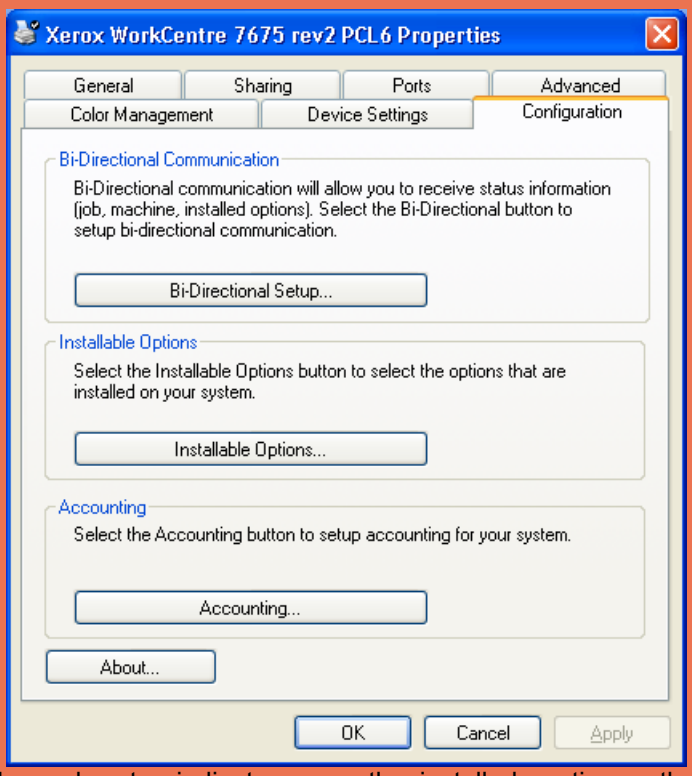
PCL AND POSTSCRIPT DRIVERS

As with control panels and touch screens, print-driver design can vary enormously from manufacturer-to-manufacturer. And, as with control panels and touch screens, how easy it is—or isn't—to make selections in the print driver and navigate through it can significantly affect user productivity.

Most vendors provide an emulation of PCL (printer control language) developed by the Hewlett-Packard Company. Some may also provide an emulation of PostScript, developed by Adobe Systems Incorporated, or they may license PostScript directly from Adobe. While the Adobe PostScript driver is not the most user-friendly of print drivers, the advantage is that many users are already familiar with it. Alternately, some manufacturers may use an emulation of PostScript and design their own print-driver user interface, or may license PostScript from Adobe and also design their own print-driver interface.

Print-Driver Checklist	
Do print drivers have identical user interfaces?	Yes
Are print drivers interfaces identical to other vendor models?	Yes
Bi-directional communication within print drivers?	Yes
Auto device configuration from within print driver?	Yes
Does print-driver installation require rebooting of the workstation?	No
Are print-driver deployment processes included?	Yes
Are print-driver deployment guidelines and procedures included?	Yes

PCL DRIVER



In order to indicate currently installed options, the administrator accesses the PCL driver's properties by selecting the "Printers and Faxes" folder via the Microsoft Windows' Start menu. Administrators select the "Installable Options" setting, and installed options are automatically indicated in the print driver. Administrators can also enable bi-directional communication between the device and the print driver, so that users can view current device from the print driver. The tab above also provides an option for enabling accounting, so that administrators can track device usage and restrict usage (below).

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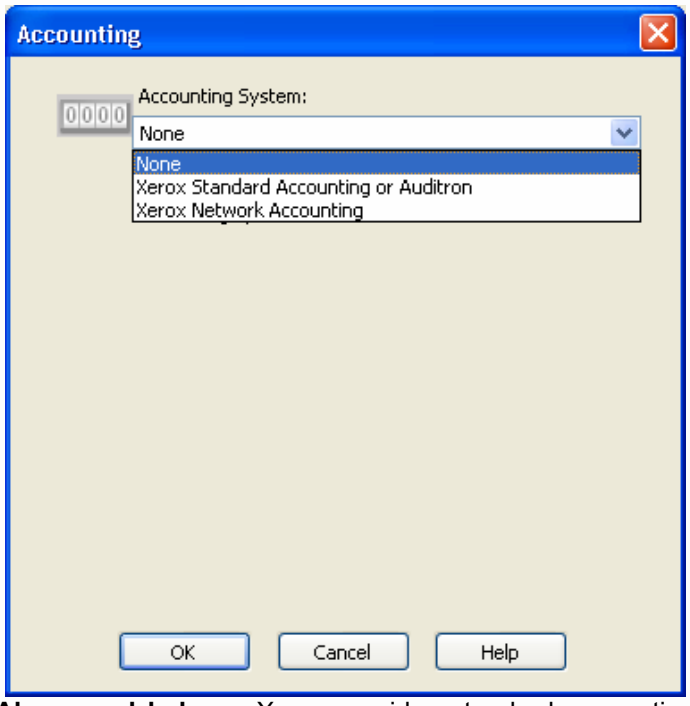
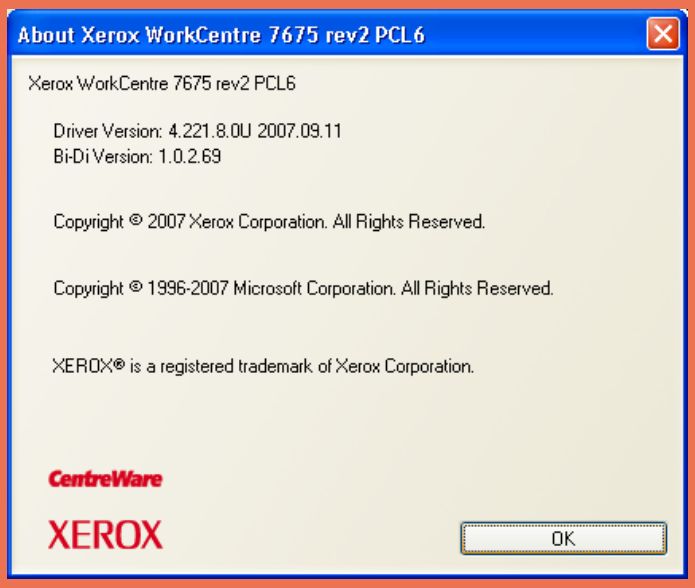
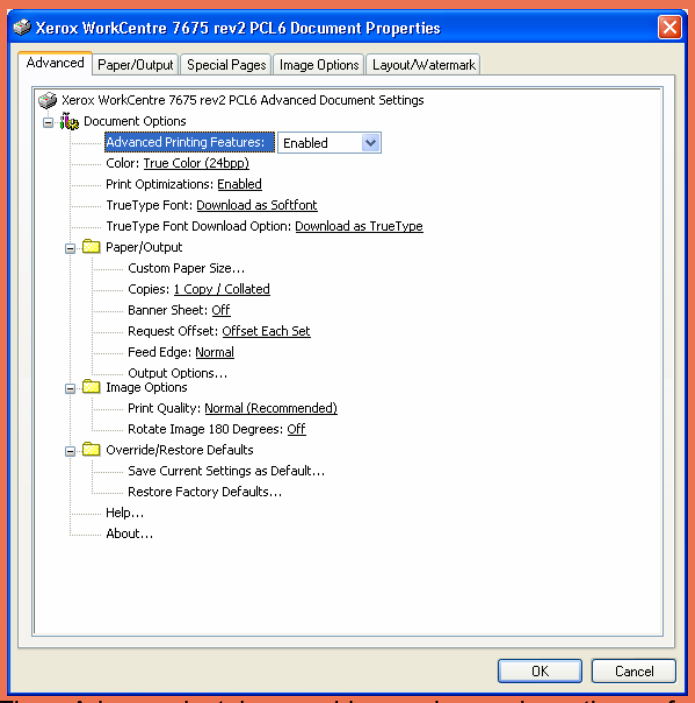




Above and below: Xerox provides standard accounting capability.



The Advanced tab provides advanced options for resolution, TrueType font substitution, collation, image rotation, etc.

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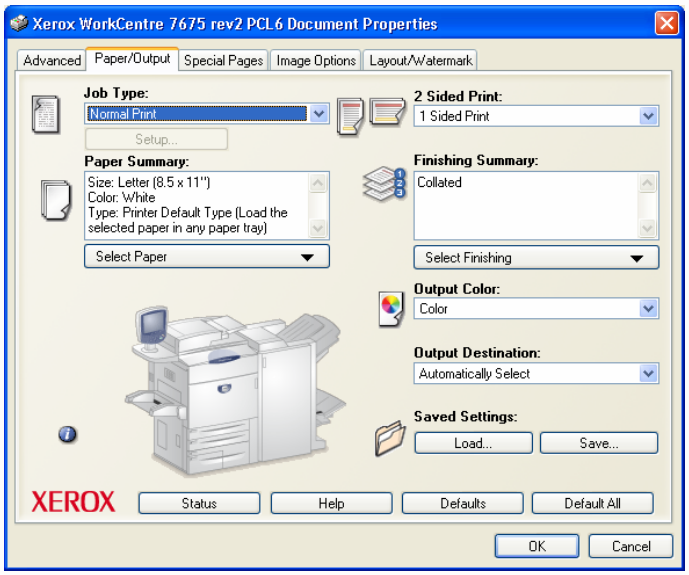
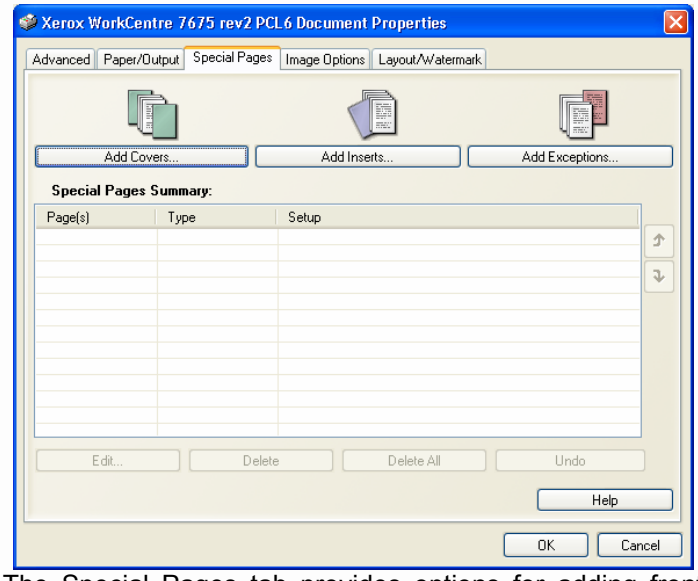
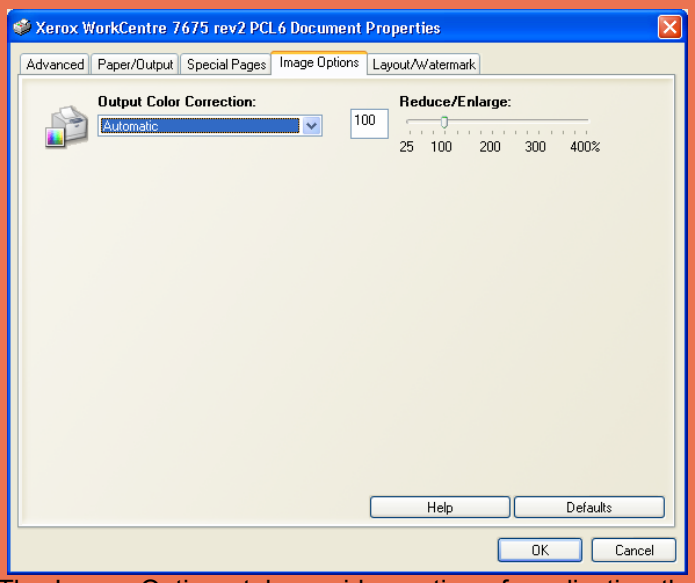


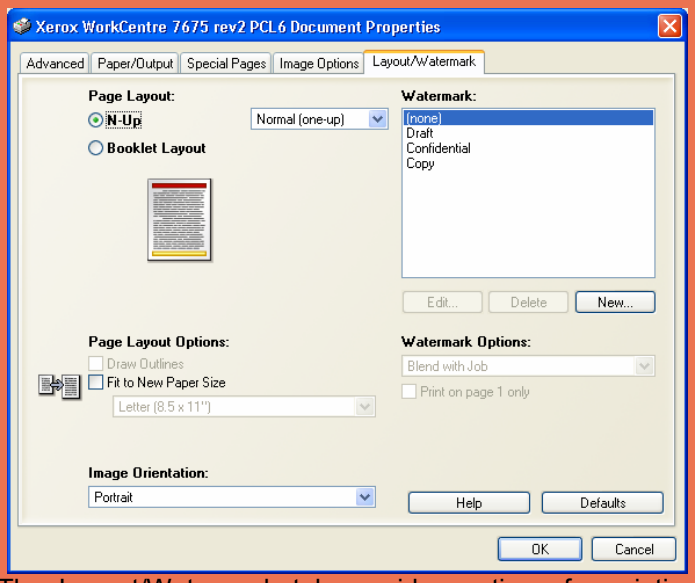
The Paper/Output tab provides options for simplex/duplex, color or black-and-white, and document finishing, as well as a summary of selected settings. The Job Type drop-down menu in the upper left provides options for storing files in hard-drive for print-on-demand (users can access the stored jobs at the device's control panel and print or transmit them at any time), as well as for secure printing (users are prompted to enter a pass code that they must enter at the control panel in order for the job to print).



The Special Pages tab provides options for adding front and back covers, inserts and specifying exception pages.



The Image Options tab provides options for adjusting the appearance of color images, as well as for reducing and enlarging images.



The Layout/Watermark tab provides options for printing and creating watermarks. This tab also provides options for N-Up printing (printing multiple pages on a single sheet of paper), for producing booklets, and for portrait/landscape paper orientation.

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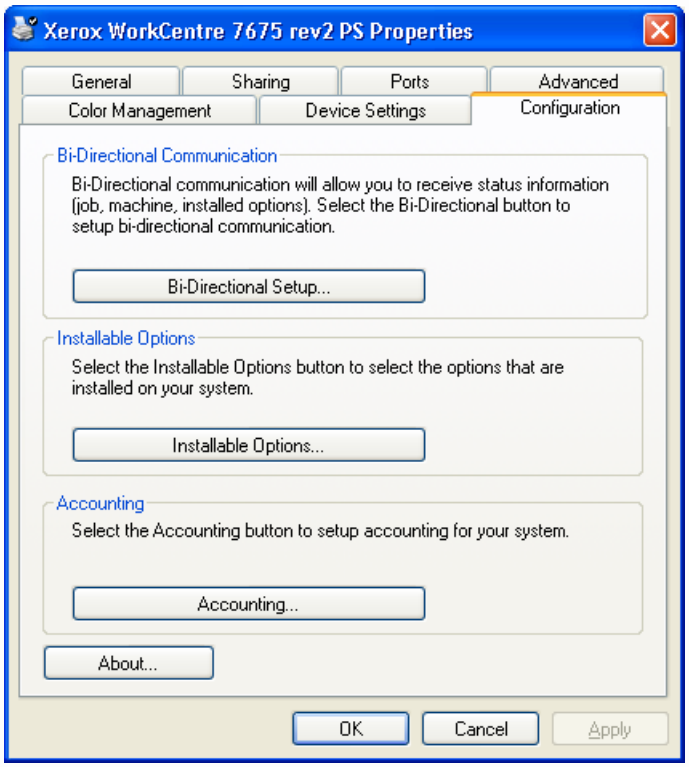
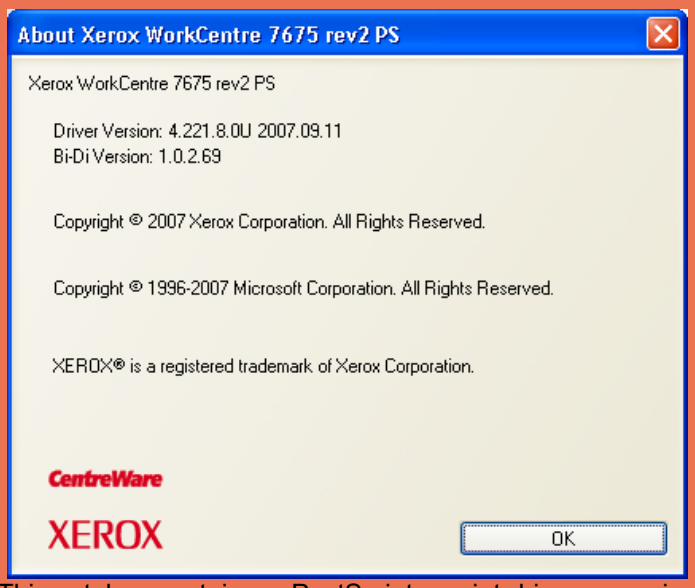
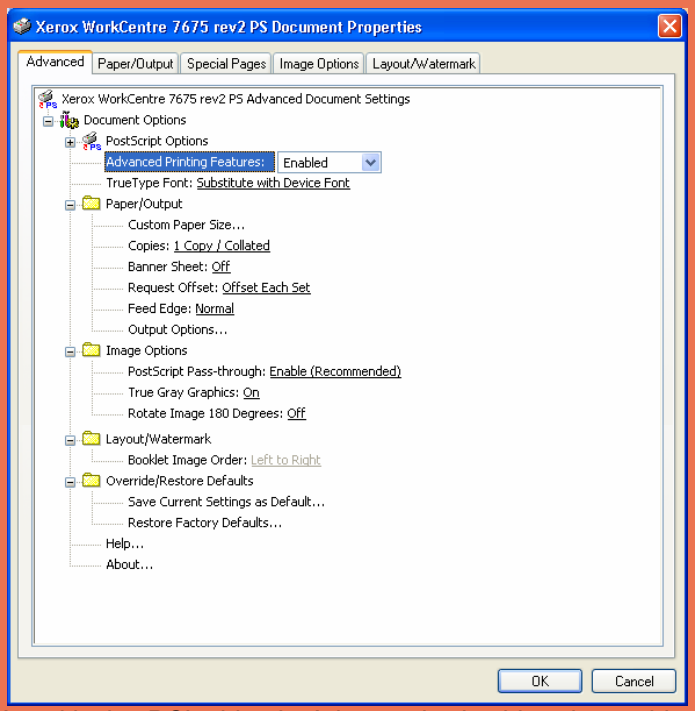
POSTSCRIPT PRINT DRIVER



As with the PCL driver, in order to indicate currently installed options, the administrator accesses the PostScript driver's properties by selecting the "Printers and Faxes" folder via the Microsoft Windows' Start menu. Administrators select the "Installable Options" setting, and installed options are automatically indicated in the print driver. Administrators can also enable bi-directional communication between the device and the print driver, so that users can view current device from the print driver. The tab above also provides an option for enabling accounting, so that administrators can track device usage and restrict usage.



This tab contains PostScript print-driver version information.



As with the PCL driver's Advanced tab, this tab provides advanced options for resolution, TrueType font substitution, collation, image rotation, etc.

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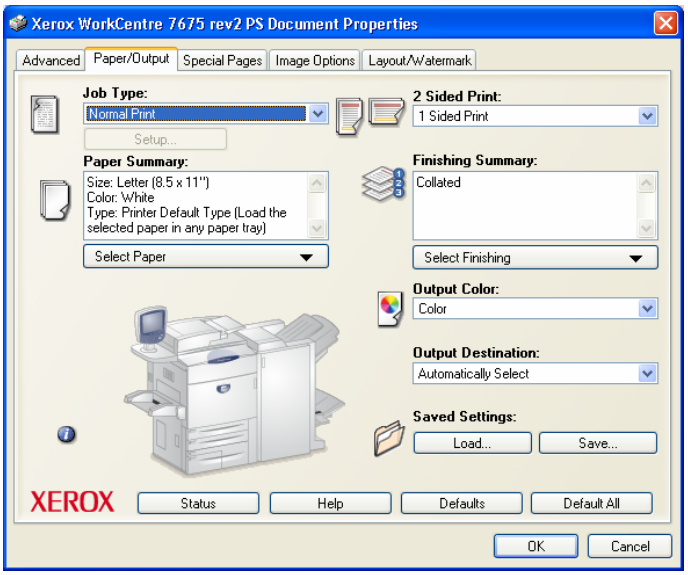
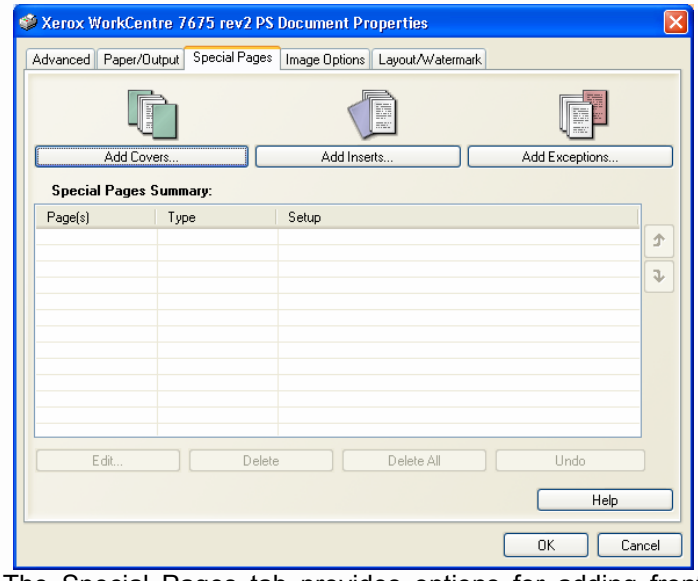
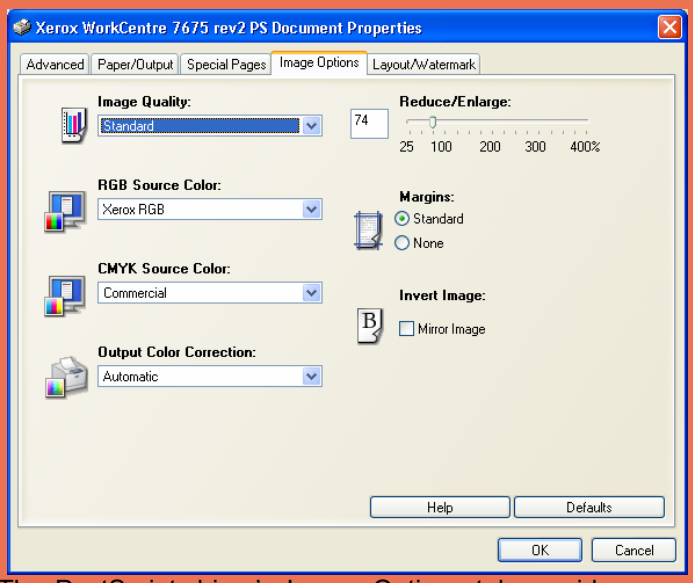


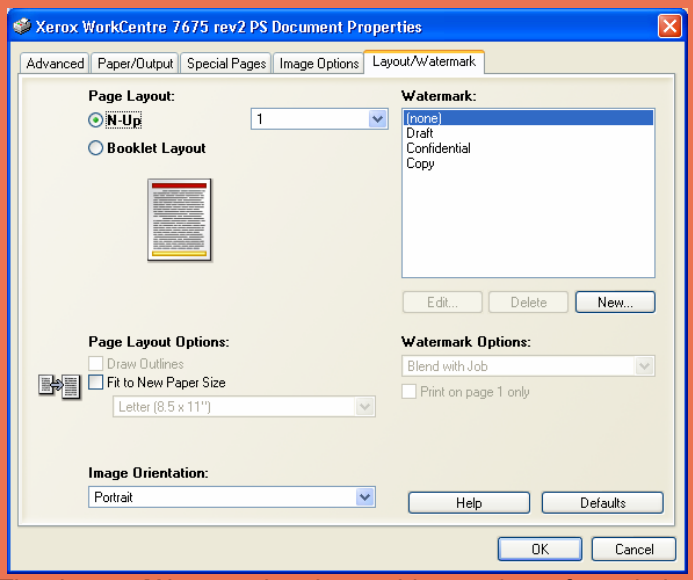
The Paper/Output tab provides options for simplex/duplex, color or black-and-white, and document finishing, as well as a summary of selected settings. The Job Type drop-down menu in the upper left provides options for storing files in hard-drive for print-on-demand (users can access the stored jobs at the device's control panel and print or transmit them at any time), as well as for secure printing (users are prompted to enter a pass code that they must enter at the control panel in order for the job to print).



The Special Pages tab provides options for adding front and back covers, inserts and specifying exception pages.



The PostScript driver's Image Options tab provides more advanced color-imaging options that the PCL driver. These more advanced options include the ability to match printed color to various color standards.



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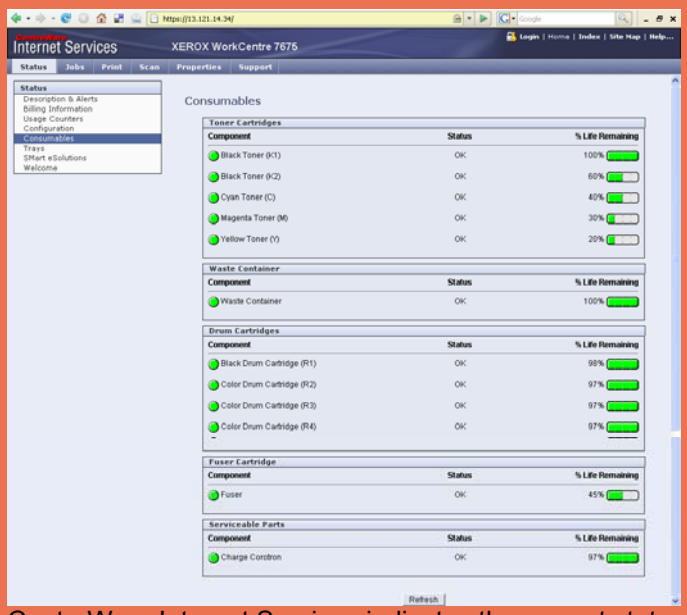
CLIENT UTILITIES

In order to take the best and most efficient advantage of a device and its capabilities, as well as ensure maximum uptime, clients need an efficient way to access and monitor the device. This is true whether the device is an MFP, printer, or scanner.

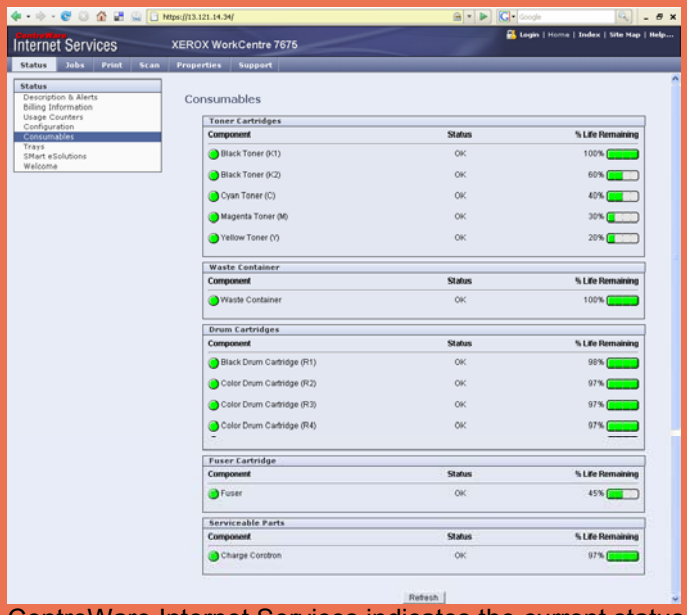
Most general users want to know first if a device is capable of handling a particular job—for instance, if it has duplexing, color capability; supports specific media sizes, or provides certain document finishing, such as stapling or saddle-stitch booklet making.

Second, users want to know a device's current status—if it is ready to print or is offline, for instance. Third, they may also wish to know whether it is equipped with sufficient supplies, such as ink and media, to be able to produce their job. Fourth, when the device is shared, they may wish to know how many other jobs may be lined up ahead of them.

Manufactures typically provide the user with this information either via a client software utility that is installed on the client's workstation, or via a printer Web page that is accessed via the Web and a Web browser. Some manufacturers may also provide software that automatically indicates (via a pop-up window) when the user's job is completed or if there is a problem with the device, such as depleted media.



CentreWare Internet Services indicates the current status of supplies, and a percentage of each item's remaining life. These consumables include the four toner cartridge, four drum cartridges, fuser and charge corotron. By providing this information, it can help users make sure new supplies are ready and on hand before downtime occurs.



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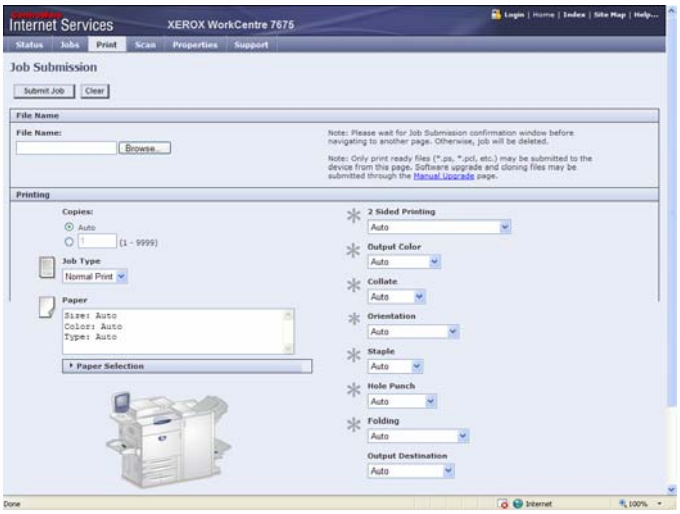
CentreWare Internet Services' Jobs tab indicates current device status and configuration on the left, while the center portion provides a job queue indicates the status of current jobs.



CentreWare Internet Services provides a direct-printing tool so that users can print files, and specify job settings, without launching an application and a print driver.

Xerox Copier Assistant™ Software

Xerox provides optional software utilities for disabled users with its Copier Assistant Software Kit. This software enables users to remotely operate the control panel from a computer workstation. An enlarged touch screen provides easier visibility, while the embedded text-to-speech software talks the user through the copying steps, including advanced tasks such as stapling, collating and two-sided copying, as well as indicating when doors are left open or if a paper tray is empty.

ROUTINE MAINTENANCE

Workgroup devices sold through retail and traditional IT distribution outlets usually are maintained by office workers who change the all-in-one cartridge units that encase the entire imaging system, including the toner cartridge (or the ink cartridges employed by ink-jet imaging systems). Units sold through resellers and dealers are usually maintained by office workers and/or trained service engineers. While separate long-life parts are more complex to install (i.e., separate toner cartridges, imaging drums, transfer belts), they tend to cost less than low- yield, all-in-one alternatives.

Toner or Ink Replacement

Changing the toner, imaging cartridge or ink cartridge is a necessary task that is traditionally is avoided by some for fear of toner dust or ink leaking on clothing or hands, or the fear that it might be too complicated. However, most units today offer clean replacement of toner or ink supplies, and there is very little risk of toner or ink leakage. Usually the replacement process is usually easy.

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Clearing Media Misfeeds
The main issue that office users attempt to avoid is the removal of an occasional media misfeed. As a general rule, the faster a device engine, and the more media handling and finishing options it has, the more complex is the process of removing media misfeeds.

Common media-misfeed sources involve the duplex unit and poor loading of media supplies. The position of the duplex unit may be a major factor in the removal of many media misfeeds. How easy or difficult it is to load media supplies can also be a factor in the overall number of misfeeds that may occur

Loading Media
It goes without saying that loading media should be as easy as possible, but sometimes that is not the case. Among the factors that affect ease-of-use are:

- The user should be able to load an entire ream (500 sheets) in a single step.
- Mechanisms such as corner separators and ramps in the media drawer can impede loading media.

The most critical factor involved in ease-of-loading media is automatic media-size detection. Ultimately, the device should be able to recognize the new media size and reflect it on its control panel/touch screen and across the network in print drivers and printer-management software. Without automatic media-size detection, users must remember to program-in the new media size—something they often neglect to do, or do incorrectly. This can result in jobs printed on the wrong media size, backed-up job logs, etc.

LOADING MEDIA

Paper Loading Checklist	
Maximum media weight from all media sources?	Yes
Drop-in loading of a full ream of paper?	Yes
Corner separators in paper trays?	No
Spring-loaded ramps in paper trays?	No
Geared media size side guides?	Yes
Captured rear media guide?	Yes
Automatic paper size detection?	Yes

ROUTINE MAINTENANCE–REPLACING TONER

In order to replace any of the five toner cartridges (two black cartridges, and one cyan, magenta and yellow cartridge), users first lower this front door. The user then slightly lifts up and then pulls out the toner cartridge, grasping it by the handle as seen above.

The user then slides in the new cartridge, pressing it in as seen above, and then closes the front door. BERTL found replacing toner cartridges very easy.

Maintenance Checklist	
Load ink/toner while running?	Yes*
Requires rear access for access to maintenance items?	No
Requires side access for access to maintenance items?	No
All-in-one imaging units?	Yes
User-disposable waste item(s)?	No

*Because the WorkCentre 7675 utililzes two black toner cartridges, users can actually replace one of the two black toner cartridges while the system is printing.

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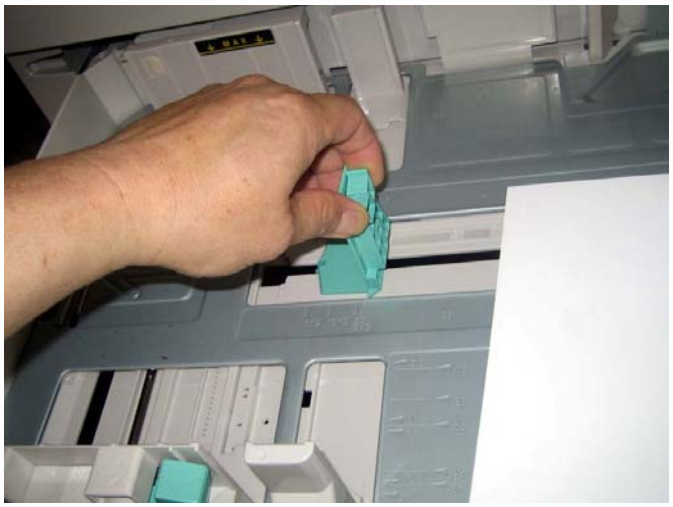
LOADING MEDIA

Above and below: adjusting the WorkCentre 7675's paper drawers is very easy. To adjust a drawer to fit a different paper width, the use simply slides the guide into place. Below, the user also simply slides a guide into place to adjust the drawer to fit a different paper width.



MISFEED ACCESS

To access the Duplex Automatic Document Feeder's misfeed-access area, the user lifts up this cover.

To access the system's side misfeed-access area, the user opens this door.

DEVICE MANAGEMENT

An efficient device-management software system is critical in order to take maximum advantage of a device's feature set, be it a printer, fax, scanner or multifunctional peripheral (MFP).

Device management is typically provided via a Web server on the device controller. This Web server is accessed using any desktop Web browser. The user simply enters the device's IP address into the address line of their Web browser. Note that administrators and office users have different management and monitoring needs.

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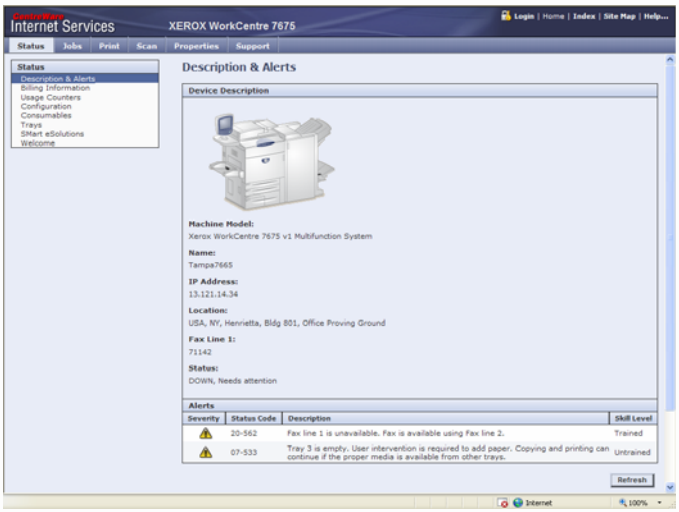
General Office Users
As noted previously, end users want to know if a device is capable of handling a particular job, current status (such as "Ready"), and current supply levels (media, toner, ink), as well as if there are any other jobs waiting to be printed.

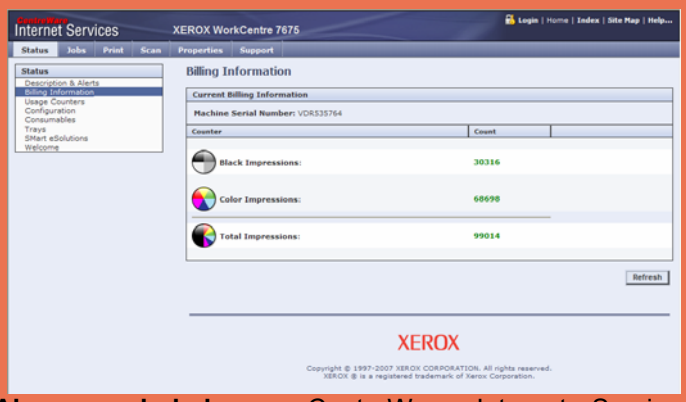
Administrators
The aim of most network administrators is to obtain greater control over networked devices without having to leave their own desk. From their computer desktop, they would like to be able to set up the device on the network, establish security for IP filter ranges, apply cost-control measures, check supply levels, and set up automated e-mail alerts for different staff members when problems occur or maintenance needs must be met.

Due to the nature of a device's Web server, this capability is usually limited to an individual device. However, many manufacturers also include a network device- management fleet tool, which allows for the concurrent monitoring and management of multiple devices connected to the network. Many also provide plug-ins for the most popular IT device-management utilities in order to ensure that the maximum amount of information can be relayed from their device to the third-party application.

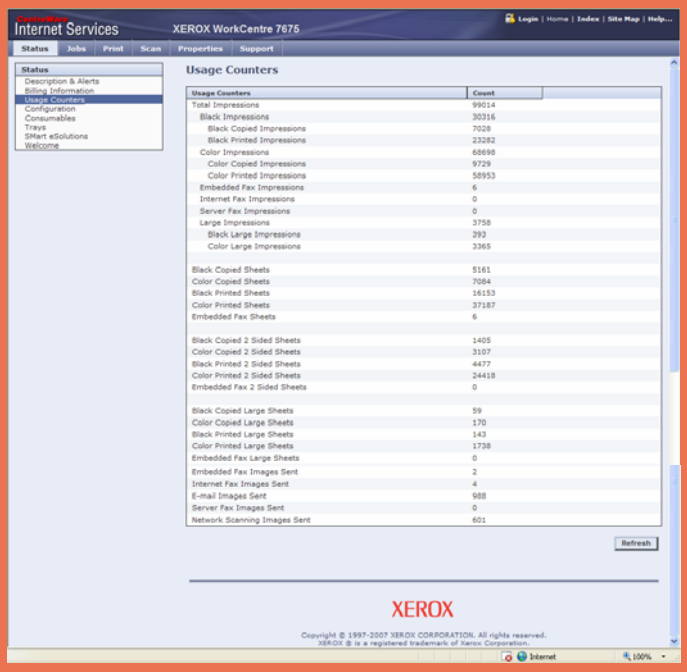


CentreWare Internet Services indicates basic system information, and, as seen at the bottom of the tab above, provides automatic alerts when network devices require attention, for instance, if a paper drawer is open. This can help minimize downtime.

Xerox also provides plug-ins for RSA Qdirect, HP Open View, CA Unicenter, IBM Tivoli NetView, Microsoft Operations Manager, Novell NDPS, Hewlett-Packard Output Management, and Hewlett-Packard Web JetAdmin. Above, CentreWare Internet



Above and below: CentreWare Internet Services provides detailed reports on pages printed. Above it is indicating the total number of pages printed, as well as the total number of black-and-white and color pages printed. Below, it is providing much more detailed information, breaking down the total pages printed into pages printed by the print function, copy function and scan function.



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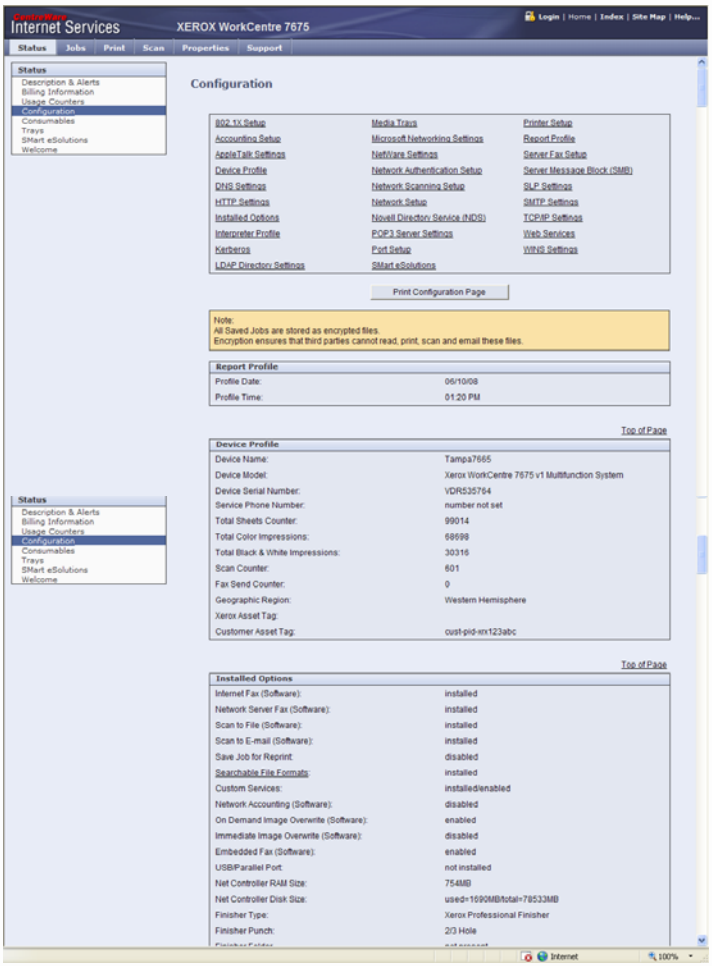
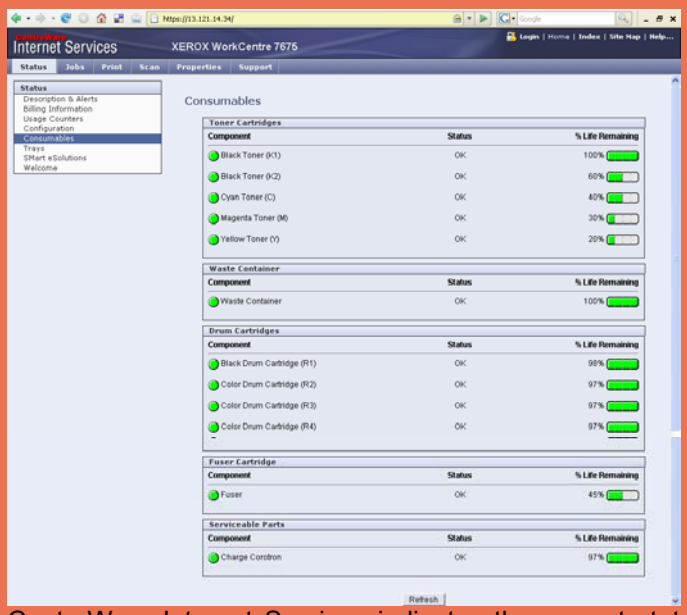
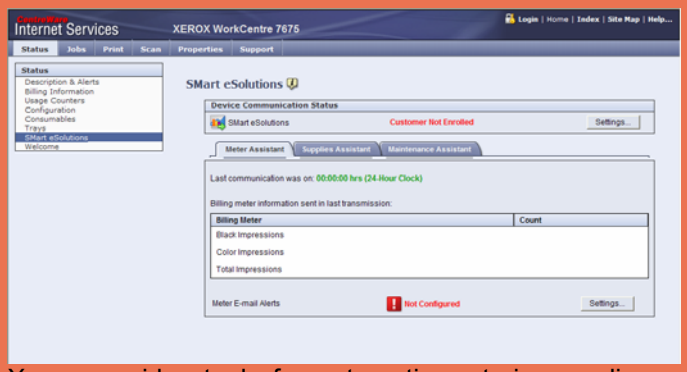


CentreWare Internet Services enables administrators to configure an extensive array of device and network settings (at the top of this page, administrators “click” on a setting, such as 802 1x Setup, and configure the setting). The bottom of the page indicates currently installed options.



CentreWare Internet Services indicates the current status of supplies, and each item’s life percentage remaining. These consumables include the four toner cartridge, four drum cartridges, fuser and charge corotron. By providing this information, it can help users make sure new supplies are ready and on hand before downtime occurs.



Xerox provides tools for automatic metering reading and reporting (Meter Assistant), for monitoring and reporting supply needs (Supplies Assistant), and for monitoring and reporting maintenance needs (Maintenance Assistant). The Supplies and Maintenance Assistants can help administrators and service personnel minimize downtime by immediately alerting them when service or supplies are required.

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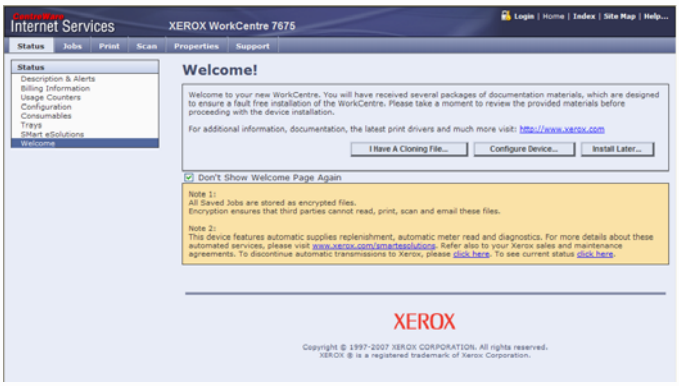
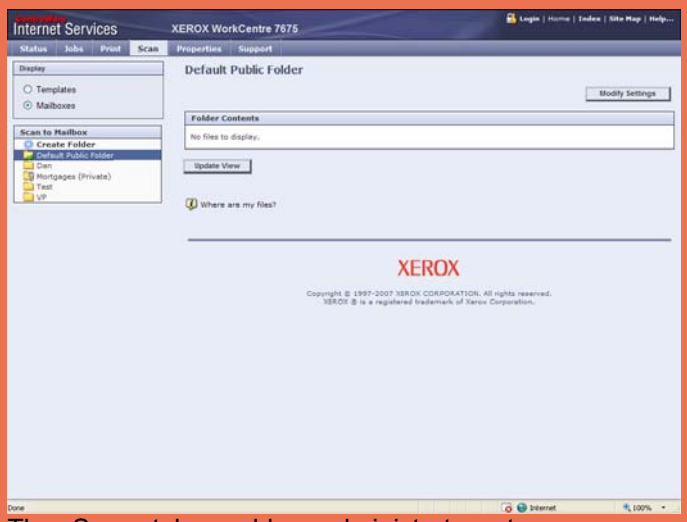
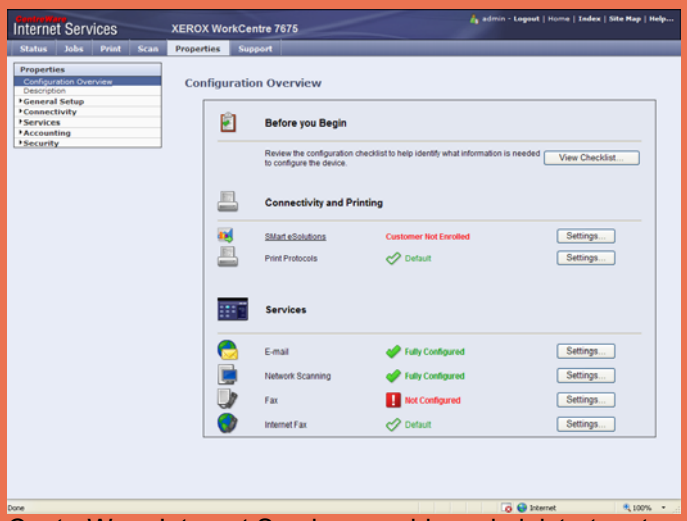


Using CentreWare Internet Services, administrators can clone a device with a file containing previously set configurations. This is especially useful in a fleet deployment, as it eliminates administrators having to individually configure each network device.

CentreWare Internet Services' Jobs tab indicates current device status and configuration on the left, while the center portion provides a job queue indicates the status of current jobs.



The Scan tab enables administrators to manage and create folders containing files that have been scanned and then stored in these folders in hard-drive memory.



CentreWare Internet Services enables administrators to configure settings and system defaults for the print, scan, fax and Internet fax functions.

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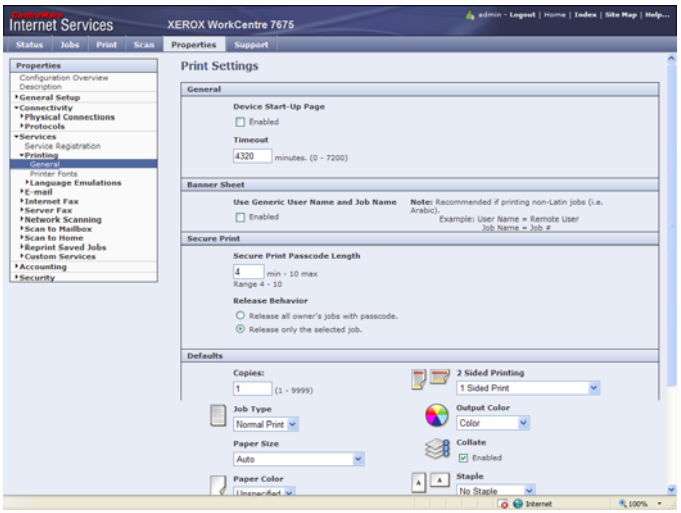
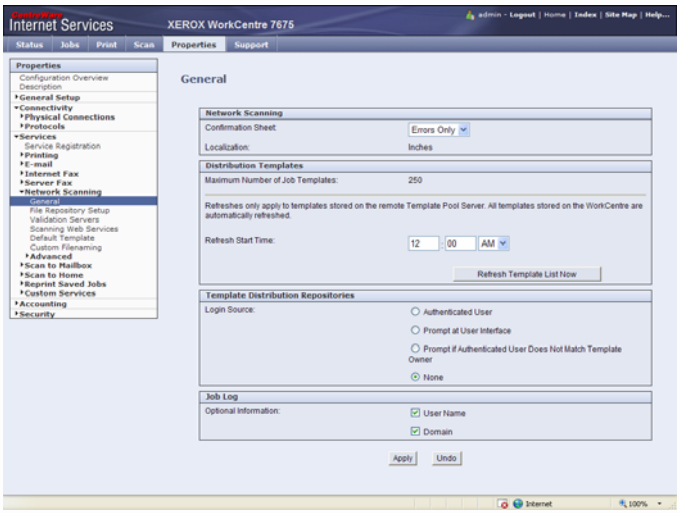
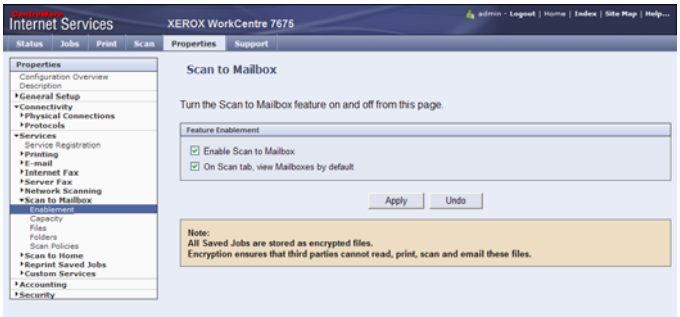


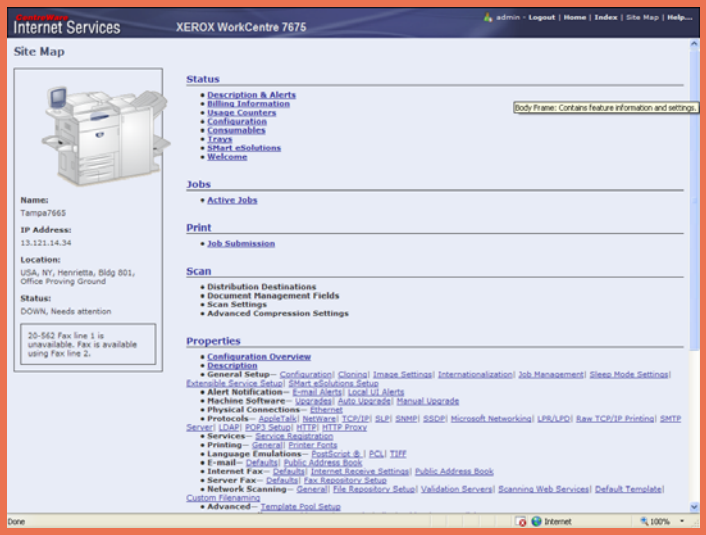
Above and below: CentreWare Internet Services provides default settings for the print function (above) and network-scanning function (below).





Administrators can enable scanning to mailboxes in hard-drive memory. Note that these stored files will be encrypted, so that the unauthorized users cannot read, print, scan, or e-mail them.

Above and below: CentreWare Internet Services provides an index of links to settings (above) and a site map providing links to CentreWare Internet functions (below).



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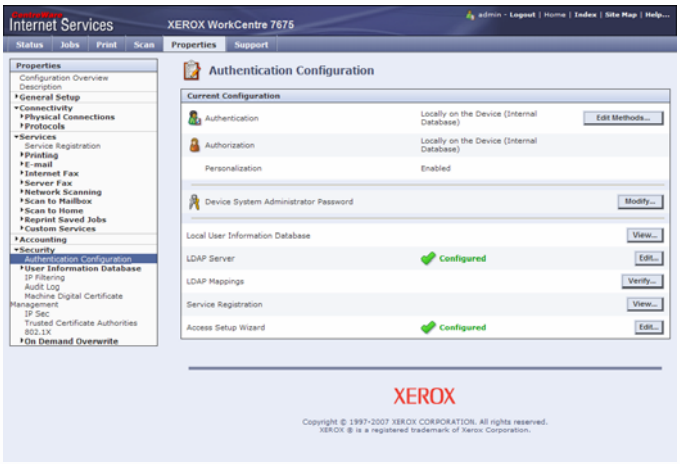

Administrators can also manage user authentication and LDAP settings.

WHAT WE LIKED

- The WorkCentre 7675 features a vertically mounted control panel that is easier to use than horizontally mounted control panels. Additionally, the touch screen can be tilted to eliminate any glare and make it easier to view.
- The control panel's hard keys are large, well-organized and clearly labeled, while the touch screen features large text for easy viewing, as well as a simple design for easy navigation. The touch screen is virtually the same as other Xerox WorkCentre devices' touch screens, which will make it especially easy for WorkCentre users to quickly acclimate to it.
- The WorkCentre 7675's touch screen displays the most common and frequently used copier settings on its first screen. This enables copy users to quickly and easily make typical settings without having to navigate through sub-menus, and significantly reduces the time to make copy-job settings. BERTL was able to make most frequently used copier settings in a matter of only 1 or 2 key presses (see "Selections Required for Frequently Used Copy Functions" chart on page 19).
- Xerox's CentreWare Web Software Suite is a very easy to use Web-based solution that provides device, consumables and job status. It enables administrators to easily monitor and configure the system, as well as manage fleets of devices from any workstation on the network.
- Network-management and configuration of the Xerox WorkCentre 7675 via CentreWare Internet Services Network Setup Utility. Administrators can clone multiple devices with the settings from one device, minimizing installation time.
- CentreWare Internet Services provides automatic e-mail alerts when the system requires attention.
- Built-in reporting functions enable administrators to track how much color is being used with each function– print, copy, scan, fax and e-mail.
- Both PCL and PostScript drivers are relatively easy to use and logically organized. Both drivers have nearly the same exact user interface. This will enable users to quickly and easily switch between drivers and allow them to find the settings they need from one driver to another with ease
- Print drivers feature bi-directional communication, so that users can view device status from the print drivers (and need not launch an application).
- Very easy toner and paper replacement.
- Misfeed-access areas are easy to locate and access.
- Compatibility with Hewlett-Packard's Web JetAdmin network-management solution.
- The system can be equipped with two black toner cartridges. Because users can replace one of the black cartridges while the system is printing, downtime is minimized.
- Automatic Information Forwarding automatically enables the collection and sending of reports to Xerox for quicker service.
- Xerox's standard accounting software provides job-based accounting for tracking and accounting of print, copy, fax and scan jobs.
- Xerox's SMart eSolutions system simplifies provides automatic meter reads.

WHAT WE WOULD LIKE TO SEE

- Overall, BERTL found the WorkCentre 7675 very easy to use.

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MEDIA INPUT

Substrate (media) handling is a core requirement of every device. If a device cannot print a file on specific media desired by the user, it hardly matters how fast the print engine is, or how many pages it can produce.

A device's media-handling capability basically concerns how it can handle two key criteria: the media size and media weight it can feed, as well as the maximum number of pages that can be loaded in the device's drawers, trays, etc. The greater the media capacity, the less time users will spend reloading media.

The WorkCentre 7675's four standard paper drawers. The system has a standard 3,260-sheet paper capacity that can be expanded to 5260 sheets.

The WorkCentre 7675's standard 250-sheet bypass tray.

Media Handling Checklist	
Minimum Media Weight	17 lb. bond (64 gsm)
Maximum Media Weight	170 lb. index 300 gsm)
Feeds maximum media weight from all media sources?	No
Offset Stacker	Yes
Finisher	Yes
Hole Punch	Yes
Saddle-Stitch Finisher	Yes
Post-Process Insertion (PPI)	Yes
Trimmer	No
Folder	Yes
Mail Bins	No
Booklet Maker	Yes

MEDIA OUTPUT AND FINISHING

Office workgroup devices' media-output handling options range from duplex printing to saddle-stitch booklet making. Many devices offer a choice of finisher/staplers, which provide a low-cost, minimum footprint solution, or a high-capacity, fully featured solution such as multi-position stapling, saddle-stitch booklet maker and/or document hole puncher.

BERTL evaluates these functions looking at how the same job outputs at different speeds when different finishing options are specified. The impact of the finishing selection is determined by timing jobs that are sent to a device with various finishing settings.

Stapling

Lower-cost finisher/stapler units often have a 15- to 30-sheet maximum stapling capability and are often limited to corner stapling. Floor-standing, higher-cost finishers typically provide 50-sheet capability and provide both corner and double stapling.

Saddle-stitch booklet making allows users to create folded, center-stapled booklets. Some saddle-stitch finishers only handle 10 sheets (for producing 40-page booklets), while others handle up to 15 sheets (for producing 60-page booklets).

Mail Bin Units and Offset Output

Many workgroup devices provide offset stacking (each set is offset from the next) to make it easier to separate jobs. Some also provide physical mailbox units that allow each user to send jobs to their own mailbox tray. However, most mailbox units do not accept finished (such as stapled) jobs.

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A multi-tray finisher can also offer some form of job separation typically used to separate different types of jobs (fax, print, copy) for easier identification.

Post-Process Insertion (PPI)
A post-process insertion unit can be used to automatically insert pages into completed print or copy jobs. These inserts can include chapter covers, color pages and heat-sensitive media.

ORIGINAL HANDLING

While scanning speeds and duty volumes may be based on perfect, standard letter/A4 size office-grade laser printer media, a much wider range of media substrates is commonly used and handled in the office world every day.

Scanning Speed
Obviously, the faster a scanner can scan originals, the faster the user can retrieve those originals and return to their desk, the sooner the device is available for someone else to use. Slower scanning means diminished productivity.

Document Feed Speed			
# of originals	**MONOCHROME MODE**	**Time In Seconds**	**OPM***
11	Simplex Originals	12.00	50.0
5	Duplex Originals	24.28	12.4
11	Mixed-Size Originals	19.53	30.7
	COLOR MODE		
11	Simplex Originals	15.91	37.7
5	Duplex Originals	24.37	24.6

*Originals per minute.

WHAT WE LIKED.

- Versatile paper handling—maximum paper size is 13” x19”, and the system accepts paper weight up to 170 lb. index (300 gsm).
- Standard Duplexing Automatic Document Feeder with a very substantial 250-sheet paper capacity.
- Standard paper capacity is 3,260 sheets, and can be expanded to a generous 5,260 sheets for supporting larger workgroups.
- Broad array of document-finishing options—1,500-sheet stacking, document-hole punching, multi-positioning stapling, V-fold booklet making, saddle-stitch booklet making, multi-positioning stapling, V-, C-, and Z- folding, and saddle-stitch booklet making.

WHAT WE WOULD LIKE TO SEE

- Overall, BERTL was very satisfied with the WorkCentre 7675’s paper-handling capabilities.

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Summing Up

Designed for mid- to large-sized workgroups with both black-and-white and color print and copy volumes, the Xerox WorkCentre 7675 performed very well throughout BERTL's tests.

Rated at up to 75 ppm by Xerox in black-and-white and at up to 50 ppm in color, BERTL observed the following when testing the WorkCentre 7675:

- The system provides a long list of accounting, billing and advanced workflow options.
- The system was exceptionally easy to use and maintain, from the large and easy-to-navigate vertically mounted control panel, to the print drivers, and Web-based device-management software.
- Ease of maintenance is very good, with a front-loading toner cartridges that even novice users will find easy to replace, and uncomplicated misfeed access and paper-replacement.
- Bi-directional communications within the print drivers allow users to quickly check on their print jobs as well as the WorkCentre 7675's status and configuration without the use of any other software utilities.
- Xerox's CentreWare Internet Services, which provides detailed device and consumables' status, and provides network configuration, access management and accounting controls for administrators.
- Xerox's CentreWare Scanning Services is the most powerful, easy-to-use and manageable scanning platform found on MFPs. Additionally, scanning services are also available from a wide array of third-party vendors providing a solution for virtually every vertical market.
- Xerox Extensible Interface Platform (EIP) enables customers and developers to develop custom applications accessible from the touch screen that streamline frequent applications.
- Broad array of hardware, software and workflow options for making the system easier for disabled users to access and use.
- An array of workflow and finishing options broadens versatility to suite a wide variety of installation types and digital imaging applications.

In testing, black-and-white network-printer productivity was up to 48.7, while color network-printer speed was up to 48 ppm (more closely matching Xerox's rated print speed for color). Similarly, in copier mode, black-and-white print speed was up to 51.0 ppm, while color print speed was up to 30.1 ppm. BERTL also notes that users with mission-critical Adobe PDF printing applications should note that any digital imaging device that provides PostScript emulation may not print PDF files with the same level of predictability as those that provide Adobe PostScript print drivers.

One critical area where the WorkCentre 7675 excelled in testing was image quality, as it displayed outstanding overall black-and-white and color image quality. Output displayed outstanding print density, excellent resolution and excellent line and dot control (critical for producing fine detail) and above average halftone reproduction,. We also noted that the system produced well above-average production of photographic images.

Other strengths worth noting are the WorkCentre 7675's media handling capabilities: up to 12" x 18" full-bleed color images onto subtrates as large as 13" x 19" and as thick as 170-lb. index (300 gsm). This moves the WorkCentre 7675 into the realm of light production, leaving other competitive office color MFPs in its tracks.

In light of the system's many strong advantages, its outstanding overall feature set and image quality, BERTL highly recommends the WorkCentre 7675 for offices, mid- to large-size workgroups and enterprises with substantial black-and-white and color print volumes that require a versatile office MFP that can provide outstanding image quality. Users will appreciate the system's excellent ease-of-use and image quality, while administrators and managers will especially appreciate Xerox's support services, the WorkCentre 7675's ease of use and maintenance, support and training, job tracking/accounting capabilities, and easy device monitoring.

OFFICE

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WHAT WE LIKED

- Tested color network productivity of up to 48 ppm in both PCL and PostScript modes.
- Tested FPOT as fast as 13.50 seconds in copier mode.
- Minimal document-finishing penalty, so that productivity will not be affected when applying document finishing to copy jobs.
- Extensive network scanning capabilities, including scan to file, network server/directory, to Windows XP client via Windows Image Acquisition (WIA) or TWAIN driver, e-mail addresses, Microsoft Exchange public folders and scan to computer workstation. Optional capability enables users to scan documents and convert them into searchable Adobe PDFs; searchable PDFs makes the task of locating and retrieving documents much easier.
- Fast document routing with "Scan to Home," which allows scanning to pre-assigned "home" destinations — such as an e-mail address, network folder or FTP directory — for fast document routing at the push of a button.
- Xerox' Extensible Interface Platform (EIP) enables development of custom applications from the touch screen—for instance, with a single press of the touch screen, users could automatically apply pre-set scanning settings and route documents to pre-determined locations. This is especially advantageous when enterprises have frequent high-volume scanning and document-distribution tasks.
- Output displayed outstanding black print density and very good cyan, magenta and yellow print density in printer mode.
- Output displayed outstanding black, cyan, yellow and magenta print density.
- In network-printer mode, output displayed above-average resolution in all four colors (black, cyan, yellow and magenta).
- Output displayed above-average reproduction of halftones in both printer and copier modes.
- Output displayed outstanding line and dot control, which is essential for producing fine detail.
- Output displayed well above-average production of photographic images.
- The WorkCentre 7675 features a vertically mounted control panel that is easier to use than horizontally mounted control panels. Additionally, the touch screen can be tilted to eliminate any glare and make it easier to view.
- The control panel's hard keys are large, well-organized and clearly labeled, while the touch screen features large text for easy viewing, as well as a simple design for easy navigation. The touch screen is virtually the same as other Xerox WorkCentre devices' touch screens, which will make it especially easy for WorkCentre users to quickly acclimate to it.
- The WorkCentre 7675's touch screen displays the most common and frequently used copier settings on its first screen. This enables copy users to quickly and easily make typical settings without having to navigate through sub-menus, and significantly reduces the time to make copy-job settings. BERTL was able to make most frequently used copier settings in a matter of only 1 or 2 key presses (see "Selections Required for Frequently Used Copy Functions" chart on page 19).
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- Xerox's standard accounting software provides job-based accounting for tracking and accounting of print, copy, fax and scan jobs.
- Xerox's SMart eSolutions system simplifies provides automatic meter reads.
- Versatile paper handling—maximum paper size is 13" x19", and the system accepts paper weight up to 170 lb. index (300 gsm).

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- Standard Duplexing Automatic Document Feeder with a very substantial 250-sheet paper capacity.
- Standard paper capacity is 3,260 sheets, and can be expanded to a generous 5,260 sheets for supporting larger workgroups.
- Broad array of document-finishing options—1,500-sheet stacking, document-hole punching, multi-positioning stapling, V-fold booklet making, saddle-stitch booklet making, multi-positioning stapling, V-, C-, and Z- folding, and saddle-stitch booklet making.

WHAT WE WOULD LKE TO SEE

- While overall, BERTL was satisfied with the WorkCentre 7675's printing capabilities, we would like to see somewhat faster First Page Out Times (FPOTs) and faster black-and-white printing speeds.
- While overall, BERTL was satisfied with the WorkCentre 7675's copying capabilities, we would like to see somewhat faster black-and-white copying capabilities

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About BERTL

The success of an organization depends on its ability to manage its information and assets. An effective workflow process requires the complex integration of information, devices, software and people.

IT managers, office managers, and other knowledge-management professionals need to know what digital imaging devices would best serve their specialized workflow processes.

BERTL's services are designed around this real-world framework, delivering business consumers the independent analysis and insight needed to make critical decisions about digital imaging's role in their organization.

Independent Analysis and Insight

BERTL's reports, comparative data, and strategic guides look at digital imaging through the eyes of the business user. The research examines not only the technical features, but also vertical market applications, and business benefits. The impact on worker productivity is a primary concern.

BERTL is 100 percent independent. It receives no funding from manufacturers and all product evaluations and reports are published at BERTL's own expense for its subscribers. Business users worldwide trust BERTL for objective, unbiased analysis of digital imaging systems.

BERTL Services

Reports and Star Ratings
BERTL analysts provide detailed reports on the technical and practical benefits of thousands of color and monochrome workgroup, office, graphic arts, and production devices.

Product Specifications
DataCheck Gen II provides the most current competitive data on printers, copiers, MFPs, fax devices, wide format printers, scanners, and more.

News, Interviews, and Analysis
The ITchat online magazine provides insight into the dynamics and trends of the digital imaging marketplace through interviews, feature articles, and software reviews.

BERTL Awards

BERTL analysts recognize the leading devices and software solutions in the annual BERTL's Best awards. BERTL also honors the performance of manufacturers in the annual Readers' Choice selections.

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