

# BERTL

HIGHLY RECOMMENDED



## Xerox WorkCentre 7242



40-ppm Monochrome; 10-ppm Color

Print • Copy • Scan • Fax

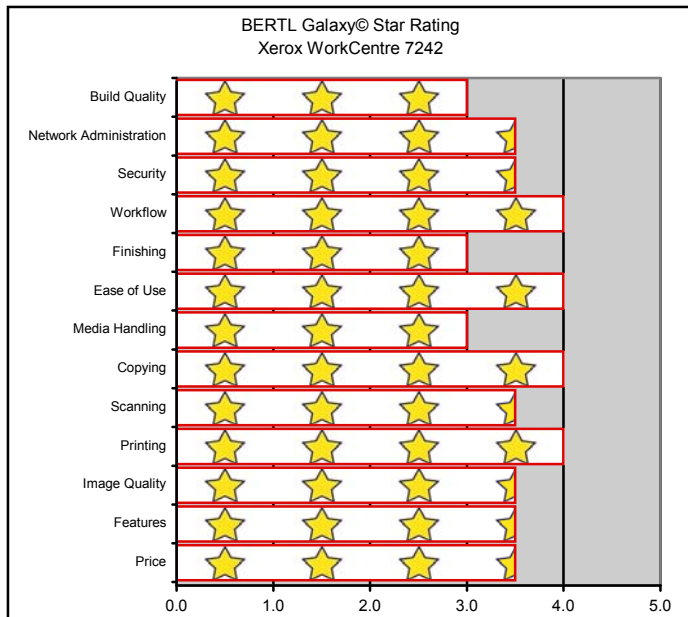


### 100% INDEPENDENT ANALYSIS

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# OFFICE



## 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 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.

In September 2007, Xerox expanded its family of color-capable office MFPs multifunction with two new WorkCentre 7200 Series products. The WorkCentre 7200 series is among Xerox's newest and fastest products that print, copy, scan and fax while incorporating the company's Extensible Interface Platform (EIP). EIP is based on Web standards and allows software developers, as well as customers, to create applications tailored to address specific business applications, such as automating routine scan-and-distribute applications.

BERTL recently tested the WorkCentre 7242, which at 40 ppm monochrome and 10 ppm color, with a maximum paper capacity of up to 4,720 sheets, is the high-end system in the series. The system lists at \$9,129, (as a digital copier/network printer), and at this economic pricing, is positioned by Xerox as providing "truly affordable color" capability. It is designed for mid-sized workgroups with primarily black-and-white imaging needs, but who also have color imaging applications, and who may be budget sensitive.

The WorkCentre 7242 controller is built on Xerox's SMart Controller Print System, which in turn is based on a 667 MHz PowerPC CPU, and includes PCL 5, PCL 6 and PostScript 3 print drivers for both Microsoft Windows, Apple Macintosh, UNIX and Linux platforms. For network and device management, Xerox to perform detailed status checks on the system and consumables, administer system settings, and manage access and accounting controls. Xerox's SMart Kit technology monitors critical device components in order to predict and prevent downtime.

Xerox's advanced MFP security features protect the document, device, and transmission path, and are available on all new WorkCentre MFPs. Encrypted Disk and Image Overwrite features protect latent images recorded on the hard drive, and can be used automatically upon job completion or on demand. The Secure Print and Secure Fax safety measures ensure sensitive information stays private. With systems equipped with network scanning, users can create encrypted and searchable Adobe PDF and XPS files.

In the following test report, BERTL takes an in-depth look at the WorkCentre 7242, testing and evaluating its productivity, image quality and ease-of-use.

## Xerox WorkCentre 7242 - Features Summary

List Price	\$9,129
Imaging Technology	Laser, electrostatic
Standard Functions	Digital Copying, Network Printer / Printer
Optional Functions	Network Scanning, LAN Fax
Maximum Monthly Print Volume	125,000 pages
Mono Print Speed	40 ppm
Color Print Speed	10 ppm
Mono First Page Out Time	14 sec.
Color First Page Out Time	23 sec.
Automatic Duplex	Yes
Network Scanning	Yes
Color Scanning	Yes
NT Authentication	Yes
LDAP Compatibility	Yes
Hard Disk Overwrite	Optional



The Xerox WorkCentre 7242 as tested by BERTL.

## PRICING

Xerox WorkCentre 7242	
List Price	\$9,129
Print Controller Options	No
Network Interface Options	Wireless (IEEE802.11a/b/g), I Bluetooth
Media Input Options	Tray 1 (520 sheets - 11"x17"); Two Tray Module (520 sheets - 11"x17") each tray; High Capacity Tandem Tray (Left Tray - 900 sheets (8.5"x11"), Right Tray - 1,100 sheet (8.5"x11")); 100-sheet Bypass Tray; 2,000-sheet High Capacity Feeder (8.5"x11")
Finishing Options	Office Finisher (50 Sheet, single-position stapling with 1000 Sheet Stacking); Integrated Office Finisher – (50 Sheet, Multi-position stapling (500-Sheet Stacking)
Software Options	PostScript Kit , Scan to PC Desktop Client Software (Professional or SE edition)
Print/Copy Management Options	Network Accounting Enablement
Other Options	One-line fax option, Three-line fax option, Foreign Device Interface, Fax Server Kit, Scan to Email with Scan to Mailbox, Scan Performance Kit, Network Scanning With Email, Data Security Kit, Mobile Stand, Secure Access Unified ID System

## SPECIFICATIONS

Print	
Black Print Speed	40 ppm
Color Print Speed	10 ppm
Black First Page Out Time	14 sec.
Color First Page Out Time	23 sec.
Print Controller	Xerox
CPU	667 MHz
RAM and Hard Drive	1.2 GB, 40-GB hard drive
Operating Platforms	MS Win: 2000, XP, Server XP, Server 2003, Server 2003 64-bit, Vista, Vista 64-bit; Apple Mac OS: 8.x, 9.x, 10.3 and

Print	
	higher
Standard Print Drivers	PCL 6, PCL 5c, XPS, HP-GL2
Optional Print Drivers	Adobe PostScript, PS
Standard Interfaces	Ethernet 10/100BaseT, 10BaseT, 10Base2 (IEEE802.5), USB 2.0

Copy	
Black Copy Speed	40 ppm
Color Copy Speed	10 ppm
Black First Copy Out Time (Platen/DF)	6 sec.
Color First Copy Out Time (Platen/DF)	15 sec.
Job Build	Yes
Scan Ahead Copy	Unlimited
Copy Job Programs	Yes
Customizable Menus	Yes
Max/Min Zoom Ratio	Yes
Cover Insertion	Yes
Sheet Insertion	Yes
Page Stamp Options	Yes

Scan	
Maximum Scan Speed (B/W)	Up to 55 ipm
Maximum Scan Speed (Color)	Up to 45 ipm
Connectivity Options	Wireless (IEEE802.11a/b/g), Bluetooth
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

Scan	
File Formats Supported	Adobe PDF, high-compression Adobe PDF, searchable Adobe PDF, JPEG, TIFF, multi-page TIFF, XPS
Encrypted PDF Format	Yes
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*	32,000 pages
Color Toner Yield*	8,000 pages *
Fuser Life	Information Not Available
Developer Life	Information Not Available
User Replaceable Drum?	Yes
User Replaceable Waste Container?	Yes
User Replaceable Original/Paper Feed Rollers?	No

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

Media Handling: Input	
Standard Media Capacity	620 sheets: 520-sheet drawer, 100-sheet bypass tray
Optional Media Supplies	Two Tray Module (520 sheets - 11"x17") each tray; High Capacity Tandem Tray (Left Tray - 900 sheets - 8.5"x11", Right Tray - 1,100 sheets - 8.5"x11"); 2,000-sheet High Capacity Feeder (8.5"x11")
Maximum Media Capacity	4,720 sheets
Maximum Media Size (main trays)	11"x17"
Minimum/Maximum Media Weight (main trays)	Tray 1 - 17 lb. bond to 80 lb cover (55 - 216 gsm)
Maximum Media Size (bypass)	11"x17"
Minimum/Maximum Media Weight (bypass)	16 lb. bond - 80 lb. cover (55 to 216 gsm)
Minimum/Maximum Media Weight (duplex)	DADF: 16 lb to 32 lb bond (38 to 128 gsm)

Media Handling: Output/Finishing	
Standard Output Tray Capacity	600 sheets
Output Option(s)	Integrated Office Finisher, Office Finisher
Maximum Stapling Capacity	50 sheets
Maximum Stacking Capacity	Integrated Office Finisher - 500-sheet stacking, Office Finisher: 1,000-sheet stacking
Maximum Saddle-Stitch Capacity	Not Applicable
Hole-Punch Option(s)	No
Physical Mail Bin Option(s)	No
Folding Option(s)	No
Post Process Inserter Option(s)	No
PPI Capacity	Not applicable

## FEATURES

Accessibility	
Routine maintenance tasks performed at front of device	Yes
Remote control-panel software	No
Audible "beeps" indicating error conditions	Yes
Control panel optimized for visually impaired	No
Voice-recognition software	No
Additional accessibility features	No
Control panel tilts?	No

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

Security	
IPv6	Yes
SSL/TLS	Yes
IP Filtering	Yes
MAC Filtering	No
Other Security Features	Yes*

\*Data Security Kit (provides encrypted Disk and Audit Log. Capability -- Hard disk overwrite immediate or on demand. Secure Web Page via SSL). Also optional are Audit log, Fax security, Image overwrite security, lock printing of received faxes, and Secure Access Unified ID System. The 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.

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 5, PCL 6, XPS Mini driver, TIFF, PDF 1.5, HP-GL2, opt Adobe PostScript 3

Client Software	
Client Software	CentreWare Internet Service, CentreWare Web
Desktop Software	Monitoring System Status
Other Software	Xerox FreeFlow SMARTsend, Xerox Scan to PC Desktop, Xerox Smart eSolutions MeterAssistant and SuppliesAssistant, Xerox Barcode Pro PS

Device-Management Software	
Web-based device monitoring	CentreWare Internet Services (detailed status checks on the system and consumables, administer system settings, and manage access and accounting controls.); Xerox CentreWare Web
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 CentreWare Printer Management for Microsoft, Novell, and UNIX; Xerox CentreWare Web Network Management Utility; Xerox CentreWare for HP OpenView; Xerox CentreWare for Tivoli NetView; Xerox CentreWare for Unicenter TNG; Xerox Device Types for SAP R/3 Environment, Xerox NDPS Gateway

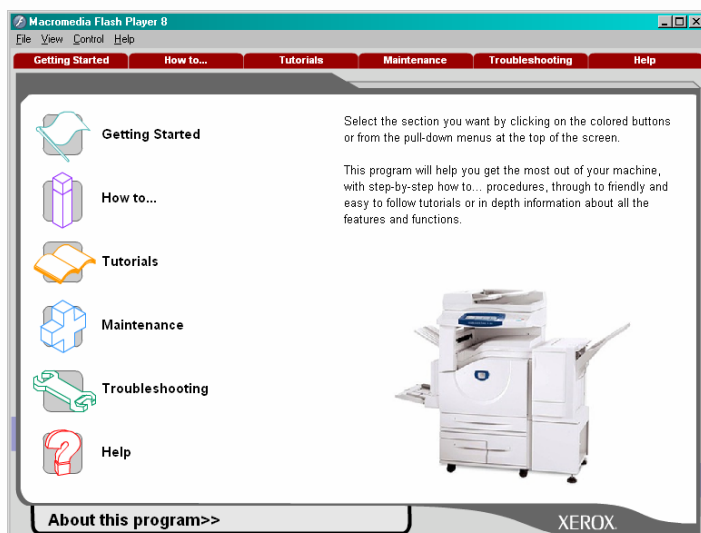
## PRODUCT HIGHLIGHTS



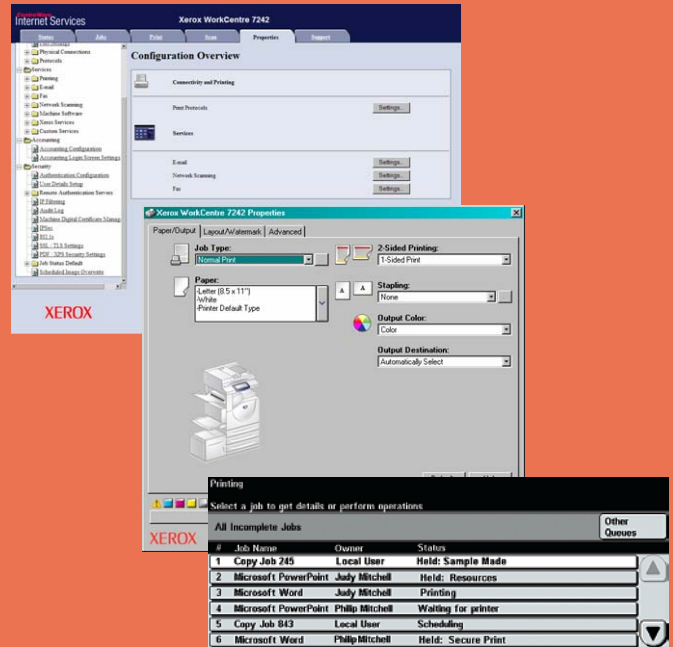
The WorkCentre 7242's Smart Controller avoids bottlenecks at the front panel by providing multitasking functionality. This means users don't have to wait until a long print job is completed to program a fax, scan or copy job. Newly programmed copy jobs will join the job queue and be executed when earlier jobs are completed.



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.



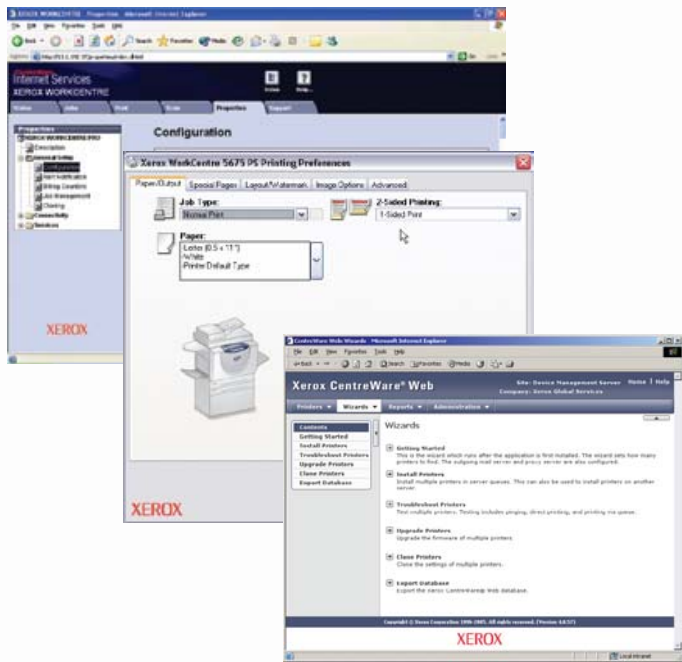
Xerox's downloadable Interactive User Guide provides users with a unique method becoming acquainted with device's features and functions.



The Xerox Smart Controller provides device-management and monitoring, as well as:

- Direct print-job submission from CentreWare Internet Services, including the ability specify job attributes such as stapling, duplex, and delay print.
- Job Queue Management at the device or desktop, with all jobs (copy, print, fax and scan) displayed, so users see what's printing and where their jobs are at all times. Users can promote, release or delete a job from the queue.
- Bi-directional print drivers provide users with current status and device feedback.
- A "print around" capability holds a job needing additional resources (such as a different paper size) and prints the next job in the queue. This function allows the device to keep working.





Xerox's CentreWare Internet Services makes it easy to remotely set up, monitor, use and maintain WorkCentre multifunction devices from any workstation securely using HTTPS-secure device administration.

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 to determine the usage of a particular device.

CentreWare Web can also be used to manage an entire enterprise-wide print environment from a single Web interface. It provides the information and control needed to anticipate problems, reduce machine downtime, minimize user frustration and reduce calls to the Help Desk.

For its part, Smart eSolutions provide administrators with secure automatic meter reads and supply replenishment information.



Xerox provides multiple levels of accounting capabilities so administrators can control, track and manage color costs. Automatic Color Copy and Automatic Color Print are two features that help administrators accurately manage color and black-and-white copying and printing.

With Automatic Color Copy, the device detects black-and-white and color pages separately, and accounts for them at their respective rates. In addition, administrators can select "Black-and-White Only" so that color documents are automatically copied in black-and-white. These output settings can be assigned as the copy default for the device to limit color usage and manage costs.

With Automatic Color Print, the device detects black-and-white pages within a print job, even with the output selection set to color. The black-and-white printed pages are then printed and charged at the black-and-white rate.

## 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	16.1 MB	17.4 MB
4 page Passport Form PDF	0.08 MB	0.64 MB	0.50 MB
16-page Magazine in PDF	1.78 MB	18.2 MB	13.2 MB
22-page Excel Worksheet	0.12 MB	1.50 MB	1.52 MB
32-page Text-Based PowerPoint	0.23 MB	15.9 MB	2.43 MB
32-page Graphic Intensive PowerPoint	4.20 MB	37.7 MB	23.50 MB
38-page Form Word Document	0.91 MB	13.9 MB	13.50 MB
50-page Text-Based PDF	0.17 MB	5.28 MB	1.73 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	38.65	46.90
4-page passport form PDF	Letter	37.03	36.07
16-page Magazine PDF	Letter	112.69	108.53
22-page Excel Worksheet	Letter	148.17	47.60
32-page text-based PowerPoint	Letter	205.81	205.41
32-page graphic-intensive PowerPoint	Letter	206.97	206.47
38-page Word form	Letter	239.72	104.37
50-page text-based PDF	Letter	90.44	90.69
50-page text-based PDF (duplex)	Letter	104.90	102.00

Job Time (seconds)				
Job List	Media Size	Mode	PCL	PS
1-page digital photo print original	Letter	1:1	38.65	46.90
4-page passport form PDF	Letter	1:1	37.03	36.07
16-page Magazine PDF	Letter	1:1	112.69	108.53
22-page Excel Worksheet	Letter	1:1	148.17	47.60
32-page text-based PowerPoint	Letter	1:1	205.81	205.41
32-page graphic-intensive PowerPoint	Letter	1:1	206.97	206.47
38-page simplex Word form	Letter	1:1	239.72	104.37
50-page text-based PDF	Letter	1:1	90.44	90.69
50-page duplex text-based Adobe PDF	Letter	1:2	104.90	102.00

Duplex PCL Print Productivity Black-and-White Text (Pages Per Minute)								
SETS								
PAGES	1	3	5	10	20	30	40	50
1	2.9	7.5	10.9	16.5	22.2	25.2	26.9	28.1
2	5.4	12.3	16.5	22.2	26.9	29.0	30.1	30.8
3	7.5	15.6	19.9	25.2	29.0	30.5	31.4	31.9
4	9.3	18.1	22.2	26.9	30.1	31.4	32.0	32.4
5	10.9	19.9	23.9	28.1	30.8	31.9	32.4	32.7
6	12.3	21.4	25.2	29.0	31.4	32.2	32.7	33.0
7	13.5	22.6	26.2	29.6	31.7	32.5	32.9	33.1
8	14.6	23.6	26.9	30.1	32.0	32.7	33.0	33.3
9	15.6	24.5	27.6	30.5	32.2	32.8	33.2	33.4
10	16.5	25.2	28.1	30.8	32.4	33.0	33.3	33.4
20	22.2	29.0	30.8	32.4	33.3	33.5	33.7	33.8
30	25.2	30.5	31.9	33.0	33.5	33.7	33.8	33.9
40	26.9	31.4	32.4	33.3	33.7	33.8	33.9	34.0
50	28.1	31.9	32.7	33.4	33.8	33.9	34.0	34.0

Simplex PCL Print Productivity Black-and-White Text (Pages Per Minute)								
SETS								
PAGES	1	3	5	10	20	30	40	50
1	3.8	9.6	13.7	20.3	26.8	30.0	31.9	33.2
2	6.9	15.4	20.3	26.8	31.9	34.1	35.3	36.0
3	9.6	19.3	24.2	30.0	34.1	35.7	36.5	37.1
4	11.8	22.1	26.8	31.9	35.3	36.5	37.2	37.6
5	13.7	24.2	28.6	33.2	36.0	37.1	37.6	38.0
6	15.4	25.9	30.0	34.1	36.5	37.4	37.9	38.2
7	16.8	27.2	31.1	34.7	36.9	37.7	38.1	38.4
8	18.1	28.3	31.9	35.3	37.2	37.9	38.3	38.5
9	19.3	29.2	32.6	35.7	37.4	38.1	38.4	38.6
10	20.3	30.0	33.2	36.0	37.6	38.2	38.5	38.7
20	26.8	34.1	36.0	37.6	38.5	38.8	38.9	39.0
30	30.0	35.7	37.1	38.2	38.8	39.0	39.1	39.1
40	31.9	36.5	37.6	38.5	38.9	39.1	39.2	39.2
50	33.2	37.1	38.0	38.7	39.0	39.1	39.2	39.2

Simplex PostScript Print Productivity Black-and-White Text (Pages Per Minute)								
SETS								
PAGES	1	3	5	10	20	30	40	50
1	4.1	10.2	14.4	21.0	27.2	30.2	31.9	33.1
2	7.5	16.1	21.0	27.2	31.9	33.9	35.0	35.6
3	10.2	20.0	24.8	30.2	33.9	35.3	36.1	36.6
4	12.5	22.8	27.2	31.9	35.0	36.1	36.7	37.1
5	14.4	24.8	28.9	33.1	35.6	36.6	37.1	37.4
6	16.1	26.4	30.2	33.9	36.1	36.9	37.3	37.6
7	17.6	27.6	31.2	34.5	36.4	37.1	37.5	37.7
8	18.9	28.6	31.9	35.0	36.7	37.3	37.6	37.8
9	20.0	29.5	32.6	35.3	36.9	37.5	37.7	37.9
10	21.0	30.2	33.1	35.6	37.1	37.6	37.8	38.0
20	27.2	33.9	35.6	37.1	37.8	38.1	38.2	38.3
30	30.2	35.3	36.6	37.6	38.1	38.3	38.3	38.4
40	31.9	36.1	37.1	37.8	38.2	38.3	38.4	38.5
50	33.1	36.6	37.4	38.0	38.3	38.4	38.5	38.5

Duplex PostScript Print Productivity Black-and-White Text (Pages Per Minute)								
SETS								
PAGES	1	3	5	10	20	30	40	50
1	3.1	7.9	11.4	17.2	23.1	26.0	27.7	28.9
2	5.7	12.9	17.2	23.1	27.7	29.8	30.9	31.6
3	7.9	16.3	20.7	26.0	29.8	31.3	32.1	32.6
4	9.8	18.8	23.1	27.7	30.9	32.1	32.7	33.1
5	11.4	20.7	24.7	28.9	31.6	32.6	33.1	33.5
6	12.9	22.2	26.0	29.8	32.1	33.0	33.4	33.7
7	14.2	23.4	27.0	30.4	32.5	33.2	33.6	33.8
8	15.3	24.4	27.7	30.9	32.7	33.4	33.8	34.0
9	16.3	25.3	28.4	31.3	33.0	33.6	33.9	34.1
10	17.2	26.0	28.9	31.6	33.1	33.7	34.0	34.1
20	23.1	29.8	31.6	33.1	34.0	34.2	34.4	34.5
30	26.0	31.3	32.6	33.7	34.2	34.4	34.5	34.6
40	27.7	32.1	33.1	34.0	34.4	34.5	34.6	34.7
50	28.9	32.6	33.5	34.1	34.5	34.6	34.7	34.7

Simplex PostScript Print Productivity Color Microsoft PowerPoint Presentation (Pages Per Minute)								
SETS								
PAGES	1	3	5	10	20	30	40	50
1	2.8	5.3	6.6	8.0	8.9	9.3	9.4	9.6
2	4.3	7.0	8.0	8.9	9.4	9.6	9.7	9.8
3	5.3	7.8	8.6	9.3	9.6	9.8	9.9	9.9
4	6.1	8.2	8.9	9.4	9.7	9.9	9.9	9.9
5	6.6	8.6	9.1	9.6	9.8	9.9	9.9	10.0
6	7.0	8.8	9.3	9.6	9.9	9.9	10.0	10.0
7	7.3	8.9	9.4	9.7	9.9	9.9	10.0	10.0
8	7.6	9.1	9.4	9.7	9.9	10.0	10.0	10.0
9	7.8	9.2	9.5	9.8	9.9	10.0	10.0	10.0
10	8.0	9.3	9.6	9.8	9.9	10.0	10.0	10.0
20	8.9	9.6	9.8	9.9	10.0	10.0	10.0	10.0
30	9.3	9.8	9.9	10.0	10.0	10.0	10.0	10.1
40	9.4	9.9	9.9	10.0	10.0	10.0	10.1	10.1
50	9.6	9.9	10.0	10.0	10.0	10.1	10.1	10.1

Simplex PCL Print Productivity Color Microsoft PowerPoint Presentation (Pages Per Minute)								
SETS								
PAGES	1	3	5	10	20	30	40	50
1	2.6	5.1	6.4	7.8	8.8	9.2	9.4	9.6
2	4.1	6.8	7.8	8.8	9.4	9.7	9.8	9.8
3	5.1	7.6	8.5	9.2	9.7	9.8	9.9	9.9
4	5.8	8.1	8.8	9.4	9.8	9.9	9.9	10.0
5	6.4	8.5	9.1	9.6	9.8	9.9	10.0	10.0
6	6.8	8.7	9.2	9.7	9.9	10.0	10.0	10.0
7	7.1	8.9	9.3	9.7	9.9	10.0	10.0	10.0
8	7.4	9.0	9.4	9.8	9.9	10.0	10.0	10.1
9	7.6	9.1	9.5	9.8	10.0	10.0	10.0	10.1
10	7.8	9.2	9.6	9.8	10.0	10.0	10.1	10.1
20	8.8	9.7	9.8	10.0	10.1	10.1	10.1	10.1
30	9.2	9.8	9.9	10.0	10.1	10.1	10.1	10.1
40	9.4	9.9	10.0	10.1	10.1	10.1	10.1	10.1
50	9.6	9.9	10.0	10.1	10.1	10.1	10.1	10.1

**WHAT WE LIKED**

- Tested black-and-white simplex and duplex network-printer speeds in both PCL and PostScript modes were up to approximately 40 ppm, matching Xerox's rated print speed of up to 40 ppm.
- Tested color network print speed was up to 10.1 ppm in both PCL and PostScript mode, matching Xerox's rated print speed of up to 10 ppm.
- Tested network-printer First Page Out Time (FPOT) was as fast as 14.55 seconds in PostScript mode and up to 15.80 seconds in PCL mode.

**WHAT WE WOULD LIKE TO SEE**

- Overall, BERTL was very satisfied with the WorkCentre 7242's printing capabilities.



## 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).



**Above and below:** The WorkCentre 7242's platen (above) and document feeder (below), with the document feeder's cover opened in order to expose the feeder's misfeed-access area.



## 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 Seconds	Color Mode Seconds
<b>Number of Originals</b>		
1 Simplex Original	12.53	20.40
2 Simplex Original (Duplex Model)	18.69	35.59

\*Using the automatic document feeder.

Copy Job Time			
# of originals	MONOCHROME MODE	Time In Seconds	CPM
10	1 sided to 1 sided	25.56	23.5
10	1 sided to 2 sided	29.97	20.0
10	2 sided to 1 sided	59.90	10.0
10	2 sided to 2 sided	66.40	9.0
	<b>COLOR MODE</b>		
10	1 sided to 1 sided	69.72	8.6
10	1 sided to 2 sided	83.88	7.2
	<b>AUTO COLOR MODE</b>		
10	1 sided to 1 sided	37.81	15.9

## Simplex Black-and-White Copier Productivity (Pages Per Minute)

SETS								
Pages	1	3	5	10	20	30	40	50
1	4.8	11.7	16.4	23.5	30.0	33.0	34.8	35.9
2	8.6	18.2	23.5	30.0	34.8	36.8	37.8	38.5
3	11.7	22.4	27.4	33.0	36.8	38.2	39.0	39.4
4	14.2	25.3	30.0	34.8	37.8	39.0	39.6	39.9
5	16.4	27.4	31.7	35.9	38.5	39.4	39.9	40.2
6	18.2	29.1	33.0	36.8	39.0	39.8	40.2	40.4
7	19.8	30.4	34.0	37.4	39.3	40.0	40.3	40.6
8	21.2	31.4	34.8	37.8	39.6	40.2	40.5	40.7
9	22.4	32.3	35.4	38.2	39.8	40.3	40.6	40.7
10	23.5	33.0	35.9	38.5	39.9	40.4	40.7	40.8
20	30.0	36.8	38.5	39.9	40.7	40.9	41.1	41.1
30	33.0	38.2	39.4	40.4	40.9	41.1	41.2	41.2
40	34.8	39.0	39.9	40.7	41.1	41.2	41.2	41.3
50	35.9	39.4	40.2	40.8	41.1	41.2	41.3	41.3

## Duplex Black-and-White Copier Productivity (Pages Per Minute)

SETS								
Pages	1	3	5	10	20	30	40	50
1	3.2	8.4	12.3	19.1	26.4	30.2	32.6	34.2
2	5.2	14.0	19.1	26.4	32.6	35.3	36.9	37.9
3	7.3	18.0	23.4	30.2	35.3	37.5	38.6	39.3
4	9.2	21.1	26.4	32.6	36.9	38.6	39.5	40.1
5	11.0	23.4	28.6	34.2	37.9	39.3	40.1	40.6
6	12.5	25.3	30.2	35.3	38.6	39.8	40.5	40.9
7	13.9	26.9	31.5	36.2	39.1	40.2	40.8	41.1
8	15.2	28.2	32.6	36.9	39.5	40.5	41.0	41.3
9	16.3	29.3	33.4	37.5	39.8	40.7	41.2	41.4
10	17.4	30.2	34.2	37.9	40.1	40.9	41.3	41.5
20	24.7	35.3	37.9	40.1	41.3	41.7	41.9	42.0
30	28.7	37.5	39.3	40.9	41.7	42.0	42.1	42.2
40	31.3	38.6	40.1	41.3	41.9	42.1	42.2	42.3
50	33.0	39.3	40.6	41.5	42.0	42.2	42.3	42.3

Simplex Color Copier Productivity (Pages Per Minute)								
SETS								
Pages	1	3	5	10	20	30	40	50
1	2.9	5.7	7.1	8.6	9.6	10.0	10.3	10.4
2	4.6	7.5	8.6	9.6	10.3	10.5	10.6	10.7
3	5.7	8.4	9.3	10.0	10.5	10.6	10.7	10.8
4	6.5	8.9	9.6	10.3	10.6	10.7	10.8	10.8
5	7.1	9.3	9.9	10.4	10.7	10.8	10.8	10.8
6	7.5	9.5	10.0	10.5	10.7	10.8	10.8	10.9
7	7.9	9.7	10.2	10.5	10.7	10.8	10.8	10.9
8	8.2	9.8	10.3	10.6	10.8	10.8	10.9	10.9
9	8.4	9.9	10.3	10.6	10.8	10.8	10.9	10.9
10	8.6	10.0	10.4	10.7	10.8	10.9	10.9	10.9
20	9.6	10.5	10.7	10.8	10.9	10.9	10.9	10.9
30	10.0	10.6	10.8	10.9	10.9	10.9	10.9	10.9
40	10.3	10.7	10.8	10.9	10.9	10.9	10.9	10.9
50	10.4	10.8	10.8	10.9	10.9	10.9	10.9	10.9

Duplex Color Copier Productivity (Pages Per Minute)								
SETS								
Pages	1	3	5	10	20	30	40	50
1	1.7	3.8	5.0	6.7	8.0	8.5	8.9	9.1
2	2.9	5.5	6.7	8.0	8.9	9.2	9.4	9.5
3	3.8	6.4	7.5	8.5	9.2	9.4	9.6	9.6
4	4.5	7.1	8.0	8.9	9.4	9.6	9.6	9.7
5	5.0	7.5	8.3	9.1	9.5	9.6	9.7	9.7
6	5.5	7.8	8.5	9.2	9.6	9.7	9.7	9.8
7	5.8	8.1	8.7	9.3	9.6	9.7	9.8	9.8
8	6.2	8.3	8.9	9.4	9.6	9.7	9.8	9.8
9	6.4	8.4	9.0	9.4	9.7	9.8	9.8	9.8
10	6.7	8.5	9.1	9.5	9.7	9.8	9.8	9.8
20	8.0	9.2	9.5	9.7	9.8	9.9	9.9	9.9
30	8.5	9.4	9.6	9.8	9.9	9.9	9.9	9.9
40	8.9	9.6	9.7	9.8	9.9	9.9	9.9	9.9
50	9.1	9.6	9.7	9.8	9.9	9.9	9.9	9.9

## 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*
10	Simplex Originals	20.90	28.7
5	Duplex Originals	32.93	9.1
10	Mixed-Size Originals	43.65	13.7
COLOR MODE			
10	Simplex Originals	20.56	29.2
5	Duplex Originals	32.94	18.2

\*Originals per minute.

Document-Finishing Penalty				
# of originals	Finishing Selection	Time In Secs	1 Set Time (Secs)	Penalty Per Set (Secs)
10/5	Corner Staple	126.97	35.42	1.97
10/5	Side Staples	*	*	*
8/5	Saddle-Stitch Booklet	117.81	33.59	0.80
10/5	Covers and Inserts	112.25	32.47	1.38

\* Side Staple option was not available on the device tested.

## WHAT WE LIKED

- Tested black-and-white FPOT as fast as 12.53 seconds in simplex copier mode, and as fast as 18.69 seconds in duplex copier mode.
- Tested black-and-white copier productivity was up to 41.3 ppm in simplex mode and up to 42.3 ppm in duplex mode, matching Xerox's rated copy speed of up to 40 ppm.
- Minimal document-finishing penalty when applying document finishing options to copy jobs.
- Fast document-feeder speeds of up to 28.7 opm in monochrome simplex mode and up to 9.1 opm in duplex mode.

## WHAT WE WOULD LIKE TO SEE

- While overall, BERTL was very satisfied with the WorkCentre 7242's copying capabilities, we would like to see faster document-feed speeds.

## 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

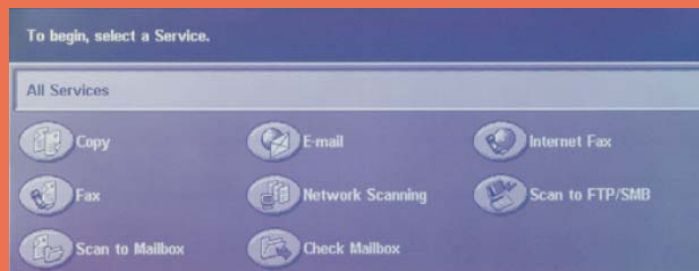
Security is another critical aspect of scanning. Several MFPs now include the ability to send scanned messages using encrypted PFD or other secure-transfer formats. This is an important capability in industries and sectors where data must be kept secure and confidential. Most devices also support network 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.

## Device Contention

Print slowdown when scanning copy job?	No
Print slowdown when scanning in scan job?	No
Print slowdown when scan-data transfer underway?	No



Users can scan hard-copy originals, converting them into electronic files, and then send them e-mail addresses or network folders.

## WHAT WE LIKED

- Images can be scanned, printed and faxed directly to the device’s hard drive and stored in a mailbox. Scanned images stored in the mailbox can then be printed at any time (print-on-demand) e-mailed, sent via fax, sent via Internet fax, routed to a computer workstation, an FTP or SMB server, etc.
- No print slowdown when scanning in jobs or when scan-date transfer is underway
- Support for a large number of file formats that include TIFF 6.0, TTN2 with JPEG, G3MH, G4 MMR, JPEG, PDF, XPS Format, MRC (optional), and Text Searchable PDF (optional)
- LDAP compatibility enables users to access the network address book, making destination-management chores easier for network administrators.
- Xerox’ Extensible Interface Platform (EIP) permits the integration and customization of virtually any Xerox or third-party workflow application, so that, for instance, enterprises can automate routine scan-and-distribute workflows.

## WHAT WE WOULD LIKE TO SEE

- Overall, BERTL was very satisfied with the WorkCentre 7242’s network-scanning capabilities.



## 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
- 11.

Density of Solid Areas*		
	Copy Density	Print Density
Black	1.45	1.50
Cyan	1.16	1.40
Magenta	0.92	1.00
Yellow	1.29	1.28

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

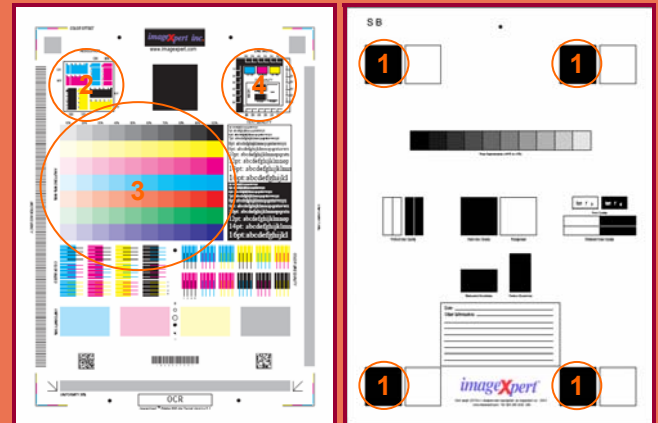
Copy & Print Resolution*				
	Copy Resolution		Print Resolution	
	Vertical	Horizontal	Vertical	Horizontal
Black	5.6	5.6	2	3
Cyan	--	--	2	3
Magenta	--	--	2	3
Yellow	--	--	3	4

\*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).

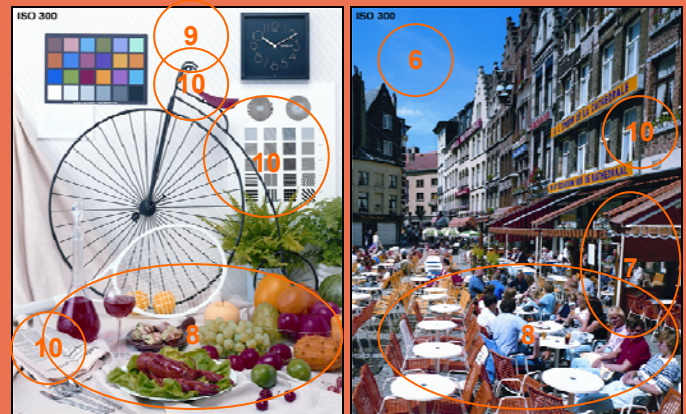
Print Halftones		
	Min. Gradation*	Max. Gradation**
Black	10	100
Cyan	10	100
Magenta	10	90
Yellow	10	100

\*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.



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 (CMYK).



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.

## IMAGE QUALITY

Copy Halftones		
	Min. Gradation*	Max. Gradation**
Black	20	90
Cyan	20	90
Magenta	30	80
Yellow	20	80

\*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	X	X	√	√
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 Black	100
1 pixel Black Neg	100
1 pixel Cyan	100
1 pixel Magenta	100
1 pixel Yellow	95
2x2 pixel Black	100
2x2 pixel Black Neg	100
Checkerboard apparent?	100

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

Photo Quality	
	Ranking (1-5)*
Fleshtones	3
Banding	4
Low Contrast	3
Saturation	3
Caste	3
Fine Detail	3

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

## WHAT WE LIKED

- Good print and copy density in all four colors.
- Good resolution in both copy and printer modes.
- Above-average halftone reproduction in printer mode when printing all four colors (black, cyan, yellow and magenta), as the device was able to correctly produce virtually all halftone shades in BERTL's halftone-evaluation chart.
- Good halftone reproduction in copier mode when printing all four colors.
- The device displayed good line control and above-average dot control
- Good production of photographic images.

## WHAT WE WOULD LIKE TO SEE

- Overall, BERTL was satisfied with the WorkCentre 7242's image quality.

## 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.

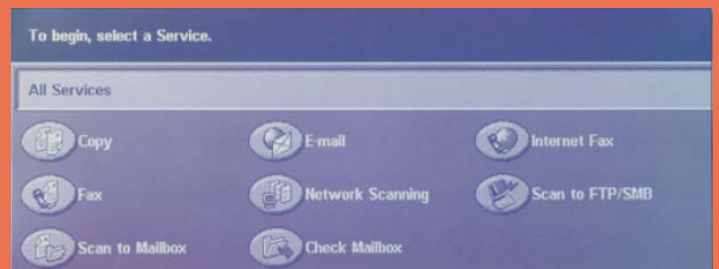
Selections Required for Frequently Used Copy Functions	
Corner Staple	1
1:2	1
2:2	1
Photo Mode	3
Copied Front and Rear Covers	3



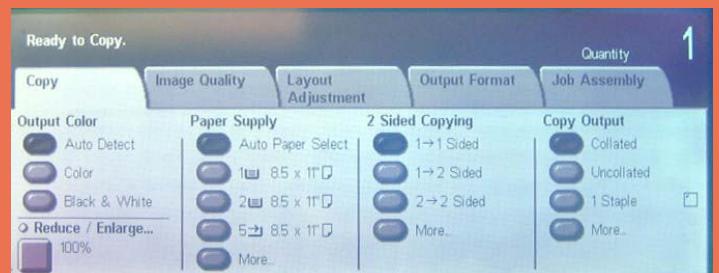
The WorkCentre 7242's Control Panel consists of a touch screen and hard keys.



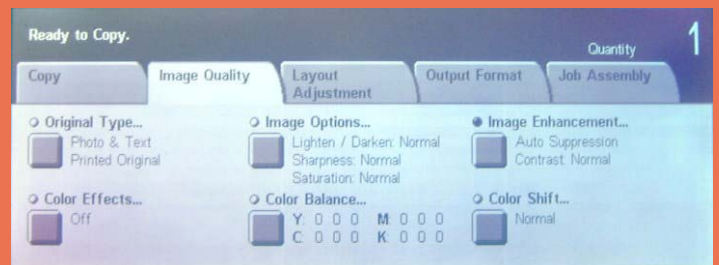
The right side of the control panel contains various hard keys, including keys for "Start," "Stop," etc. as well as a numerical keypad for entering number of copies and fax numbers, keys for switching between different functions (copy, scan, fax, etc.), and hard keys for displaying job status and machine status.



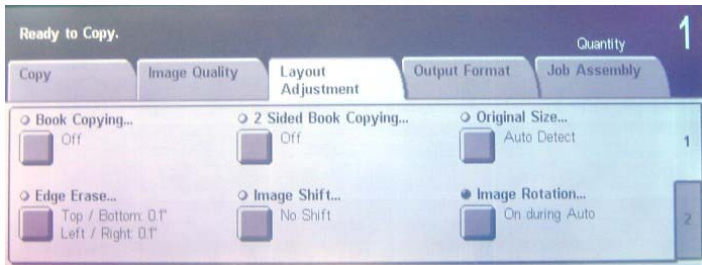
The "All Services" touch screen button displays all of the device's available functions.



The touch screen's main menu provides users with the most common copying choices. The bold buttons on the touch screen display currently selected settings.



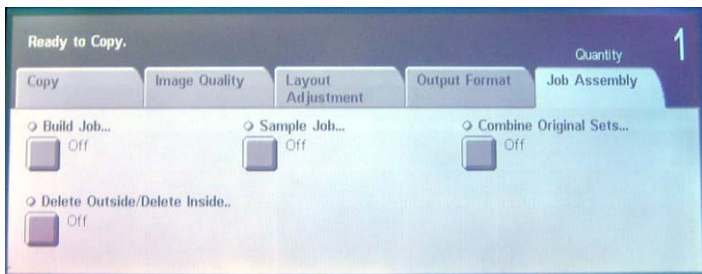
The touch screen displaying image-quality options for the copy function.



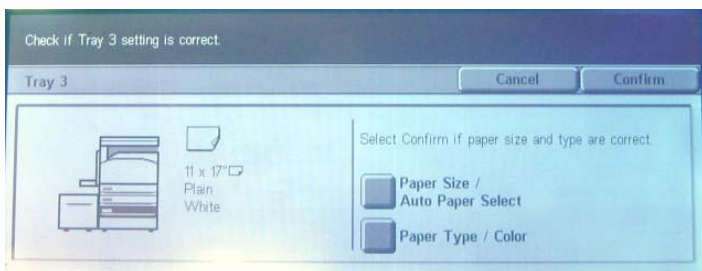
The Layout Adjustment tab provides options for Book Copying, 2-Sided Book Copying, Original Size, Edge Erase, Image Shift and Image Rotation.



Users can choose several different Output Formats for their copy jobs from this touch screen. Options include Booklet Creation, Covers, Transparency Options, Page Layout, Posters and Annotations.



The touch screen's Job Assembly options provide users with the ability to Build a Job, print a Sample Job, Combine Original Sets, and Delete Outside / Delete Inside.



Whenever paper is changed in the paper sources, the touch screen will prompt users to confirm the paper size and type.

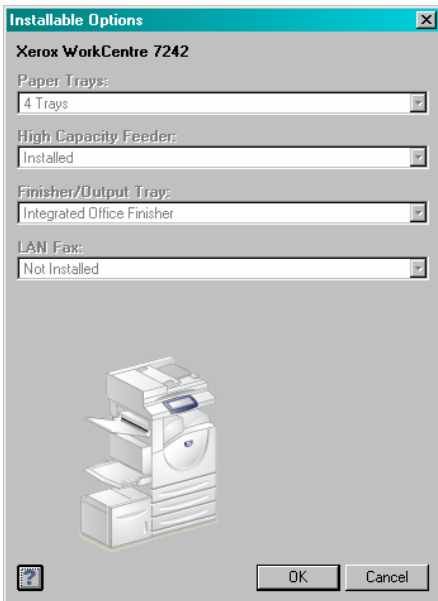
## PCL AND POSTSCRIPT DRIVERS

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
Bidirectional 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

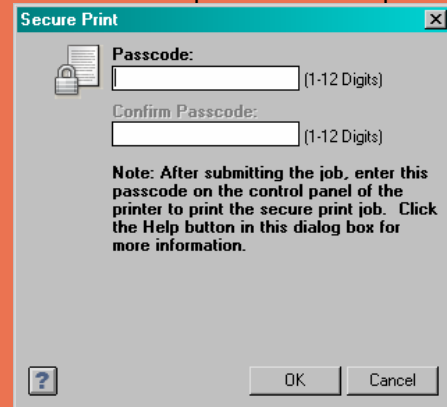
## PCL PRINT DRIVER



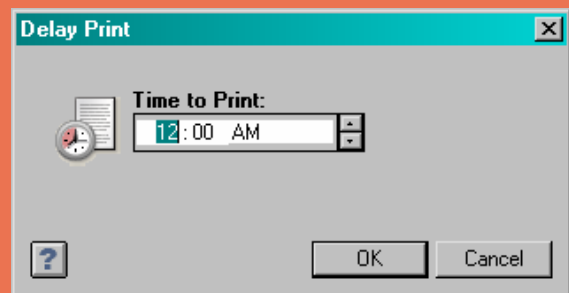
In order to specify which options have been installed, as well as specify system defaults, administrators first access the "Printers and Faxes" folder via the Microsoft Windows' Start menu, and then select the WorkCentre 7242's PCL driver. Administrators can "manually" specify which options are installed, or they may simply enable "Bi-Directional Communication" between the device, and the driver automatically indicates that the options shown above are available for use.

In the "Job Type" drop-down menu on the top left are options for Normal Print, Secure Print, Sample Set, Delay Print, and Saved Job:

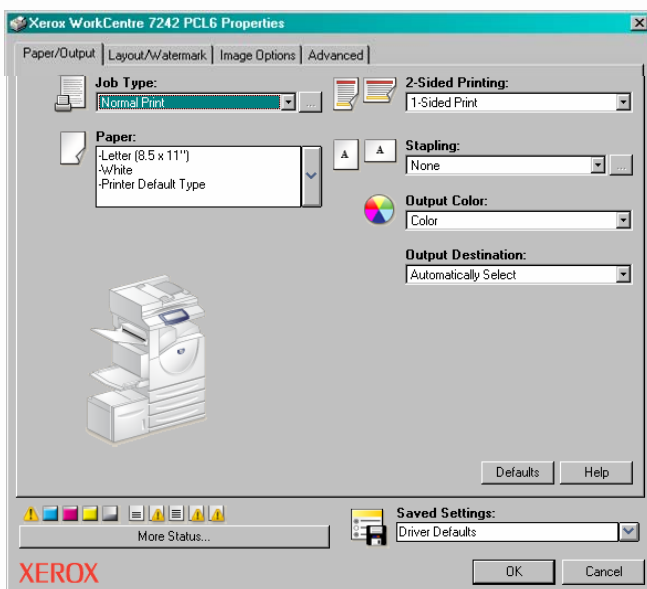
- Normal Print: Prints the job immediately without requiring a pass code.
- Secure Print: Prints the job only after the user enters their pass code at the printer's control panel.



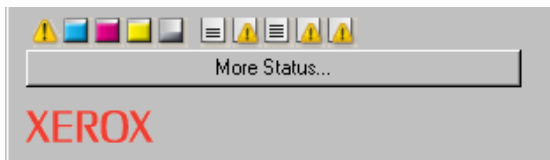
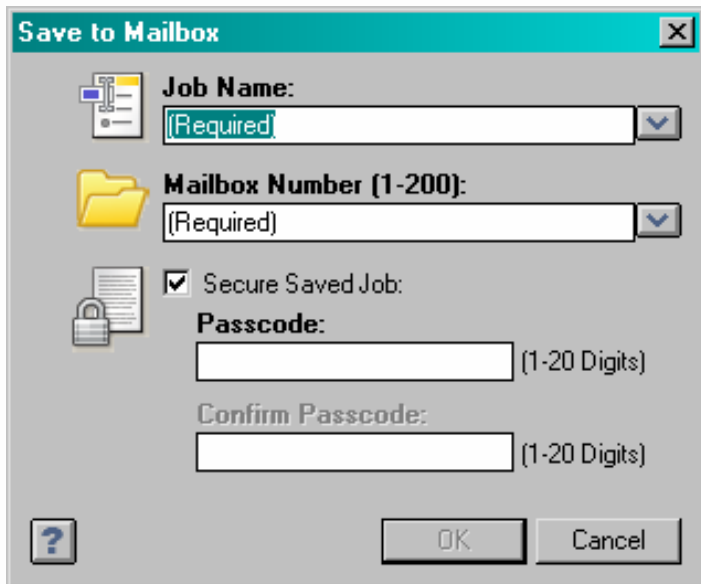
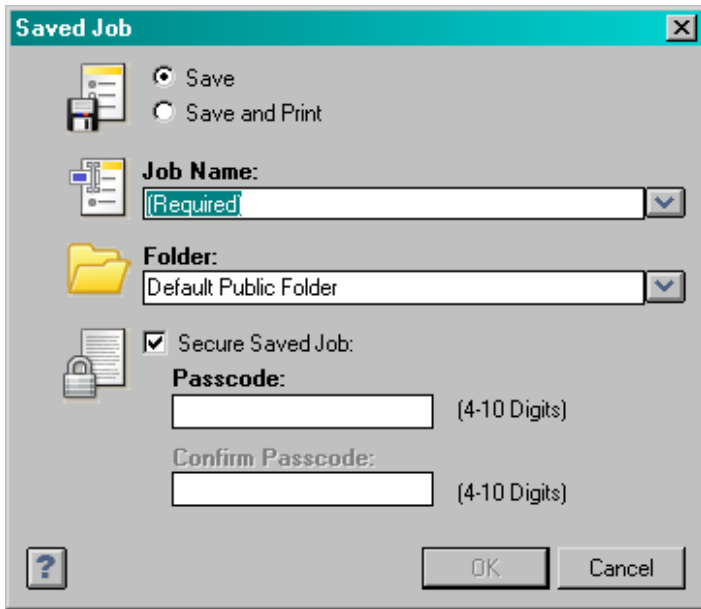
- Sample Set: Prints one copy of the job as a sample and holds the remaining copies of the job at the printer until you release them from the printer's control panel.
- Delay Print: Prints the job at the time specified by the user. When this job type is selected, the Delay Print dialog box appears so users can specify a time to print.



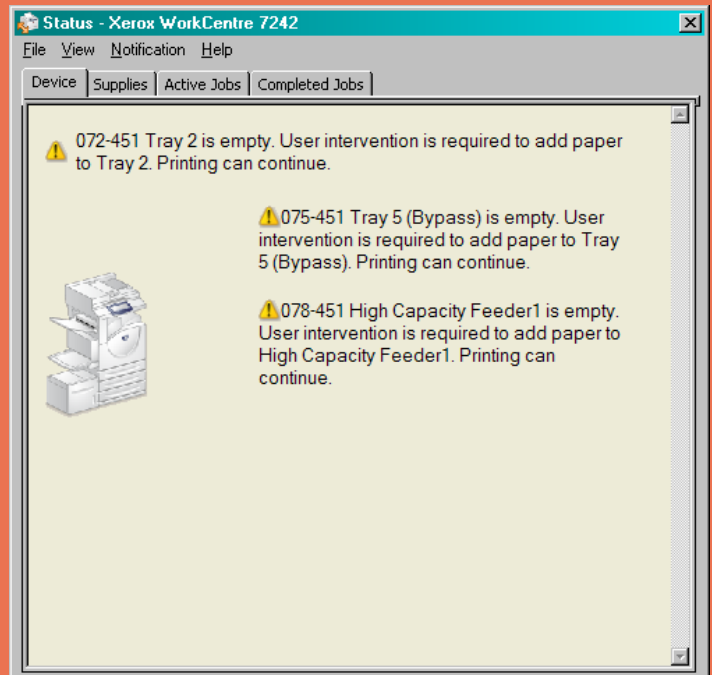
- Saved Job: Stores the job on the printer's hard drive so that it can then be printed on demand from the printer's control panel or printed from CentreWare Inter Services. When this job type is selected, the Saved Job dialog box appears so users can assign a job name and, if desired, print it and save it (next page).



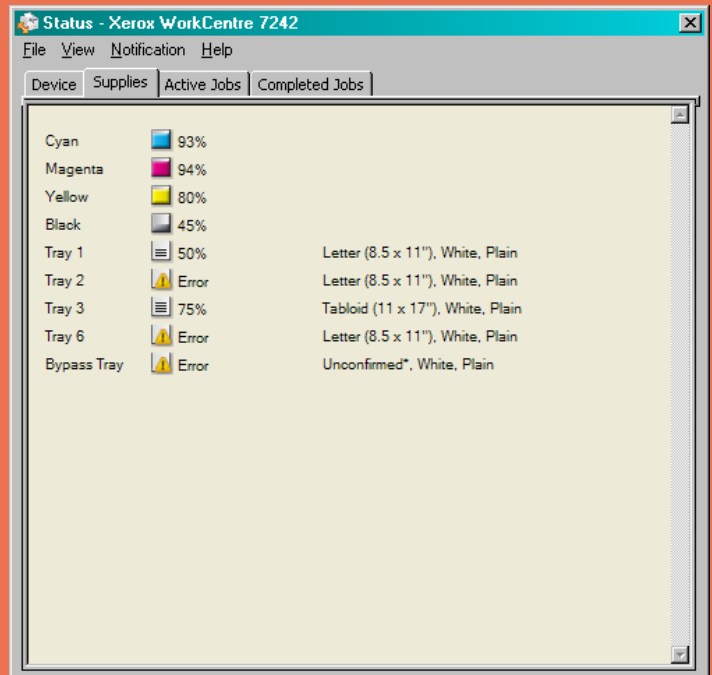
The PCL driver's first tab, Page/Output, provides basic options such as portrait/landscape orientation, paper size, reduction/enlargement, etc. The window on the left indicates the currently selected options.



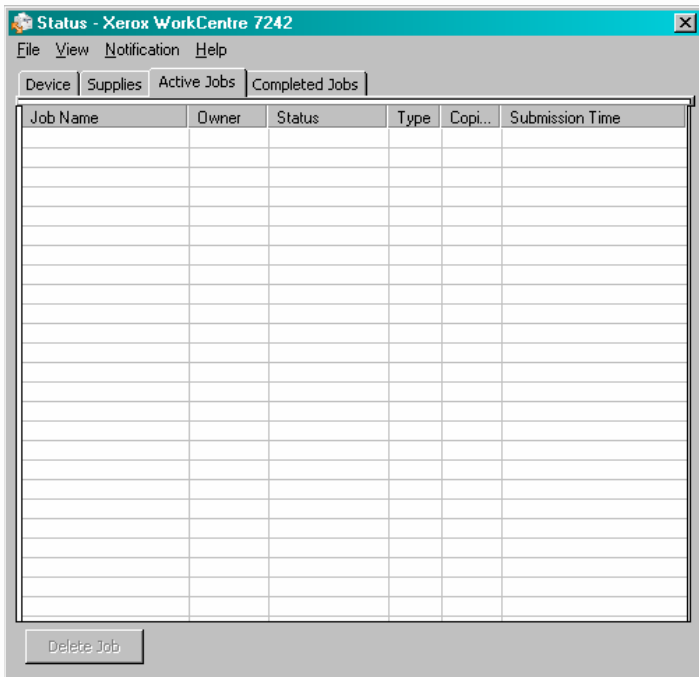
On the bottom of the Paper /Output screen several status icons are displayed alerting users of the device status. When the user selects More Status, a Status dialogue screen appears:



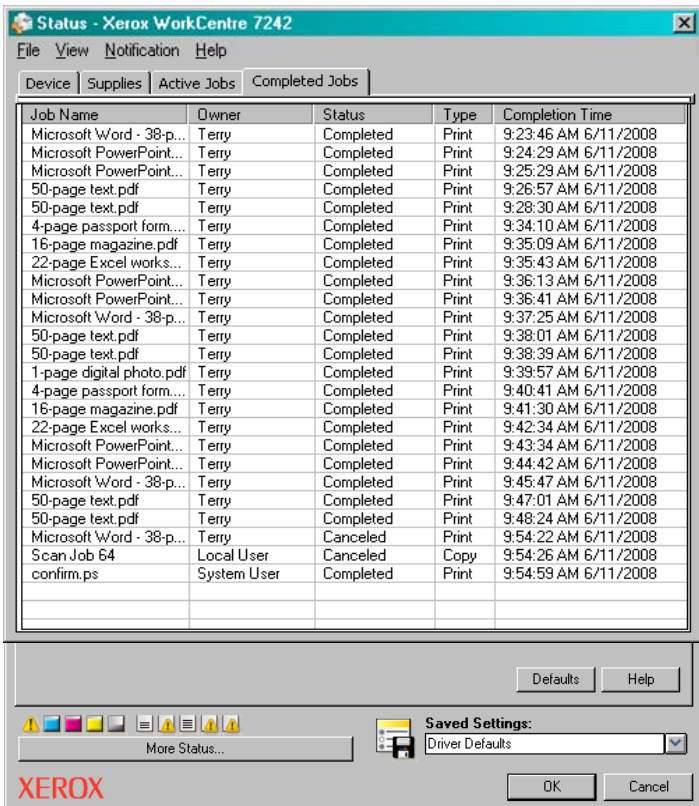
The Status dialogue screen displays the current device status and alerts users when paper drawers require attention or are running low on paper.



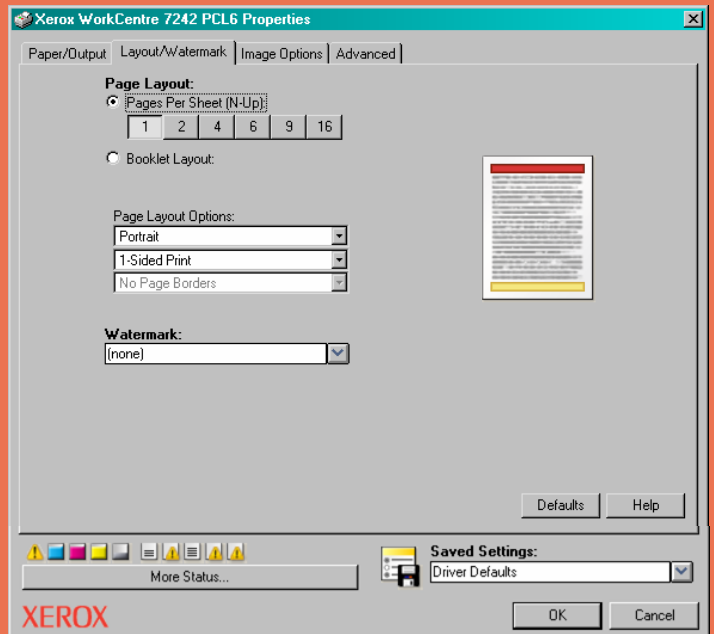
The Supplies tab displays a percentage estimate of the remaining supplies.



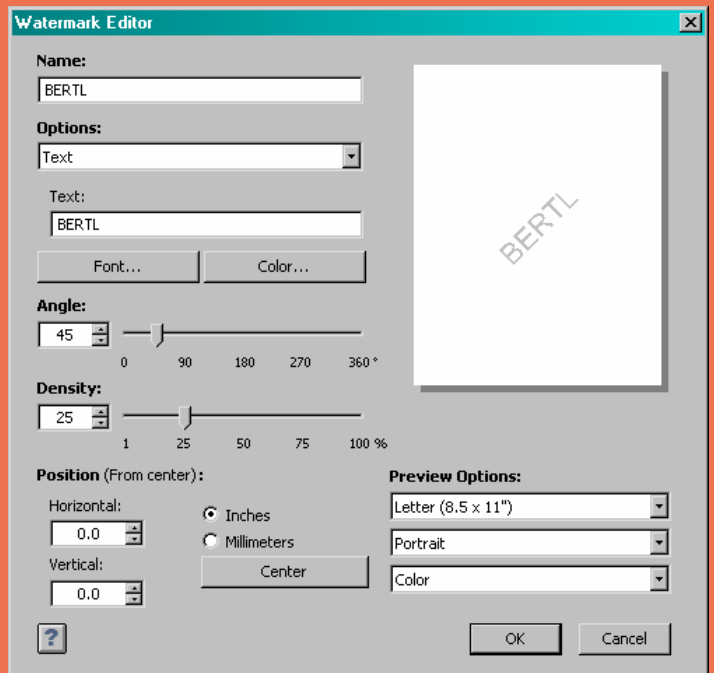
The Active Jobs tab displays a list of current jobs being processed by the device.



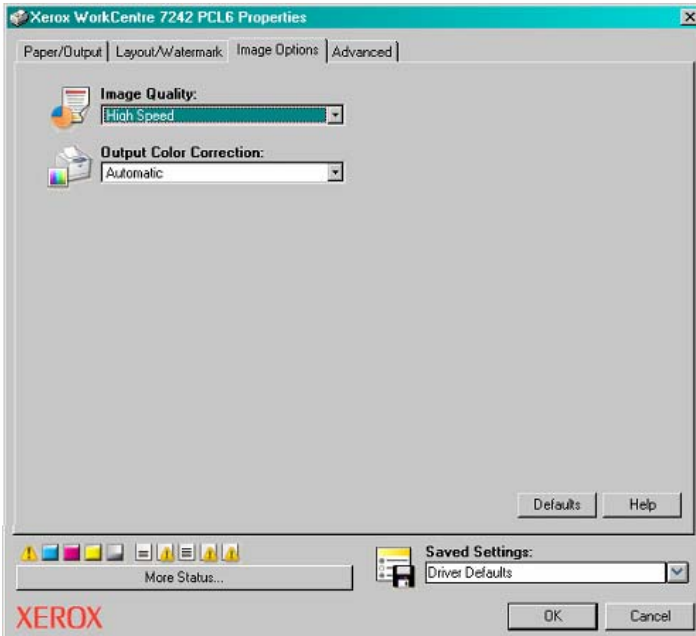
The Completed Jobs tab displays a list of all completed jobs processed by the device.



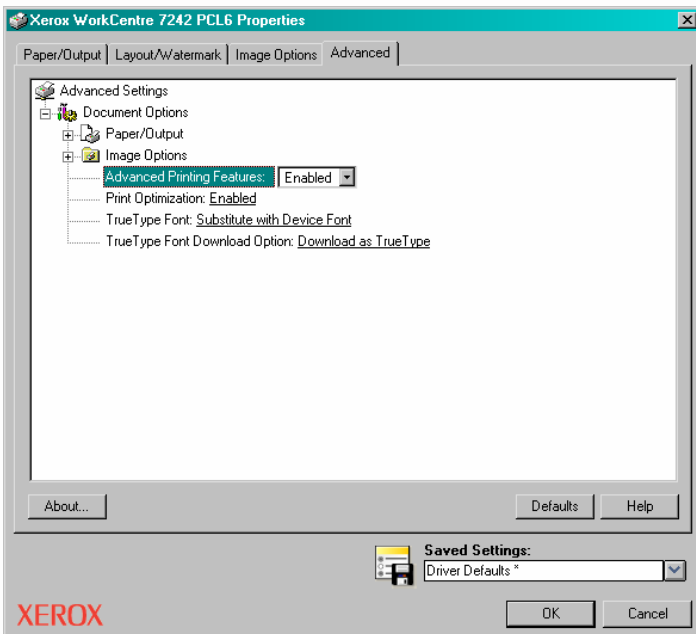
On the Layout/Watermark tab, users can specify layout options and watermarks to be printed on specific pages. Users can also select booklet options, several page layout options, including duplex printing, orientation, and page borders.



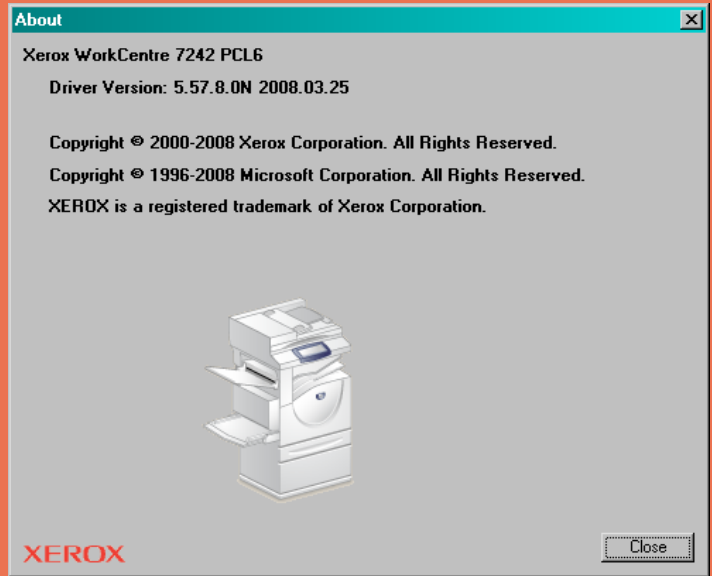
Users can also add, edit or adjust watermark selections.



On the Image Options tab, users can adjust the image quality of the document to be printed. Users can select Image Quality (High Speed/High Quality), and Output Color Correction (Automatic/sRGB/None) Mode. The High Speed option allows output to print quickly but with a lower image quality, while with the High Quality option, pages will be printed more slowly but with a higher image quality.

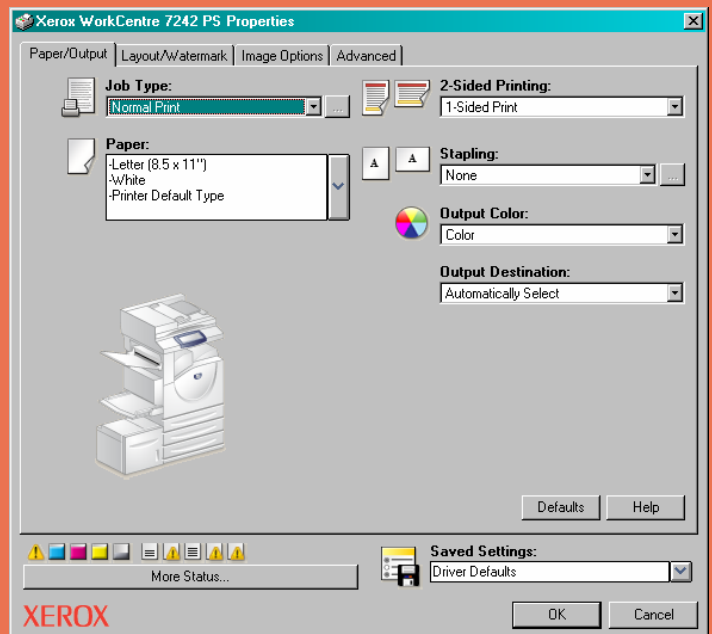


The Advanced tab provides advanced Paper/Output and Image Options.



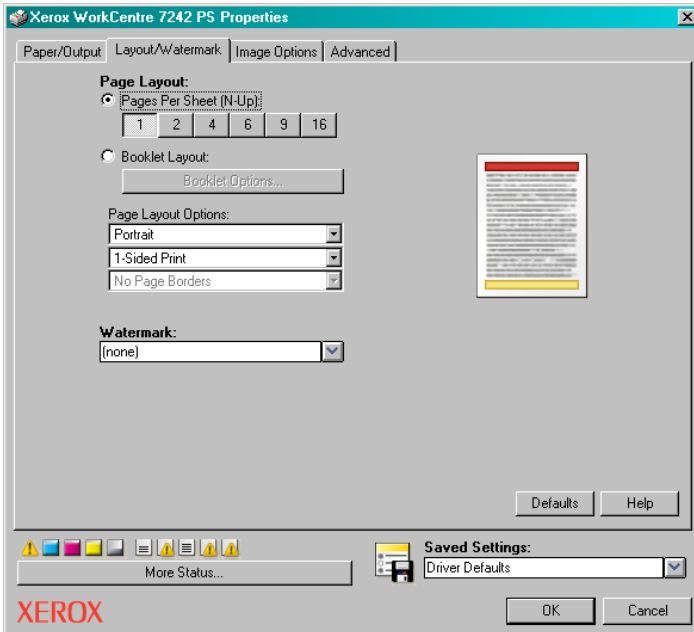
This tab provides print-driver version information.

## POSTSCRIPT PRINT DRIVER

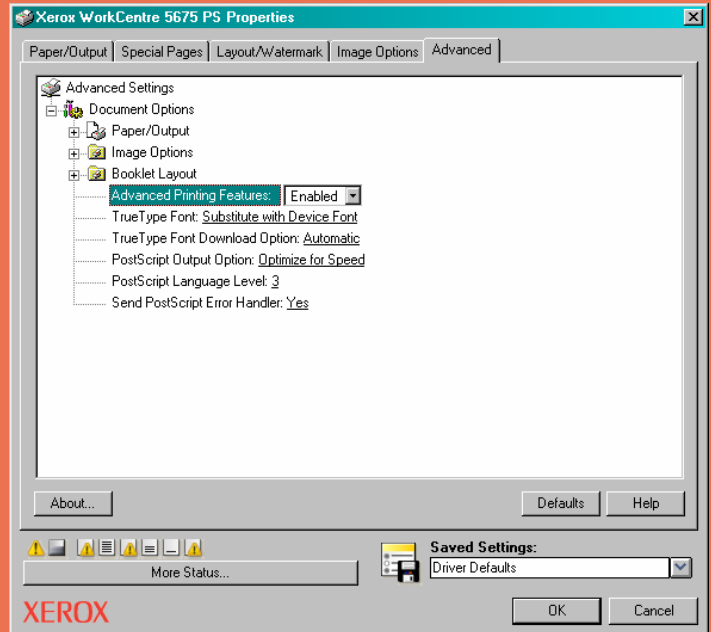


The WorkCentre 7242's PCL and PostScript drivers have very similar user interfaces. The PostScript driver's Paper/Output tab provides the same basic options as the PCL driver's Paper/Output tab.

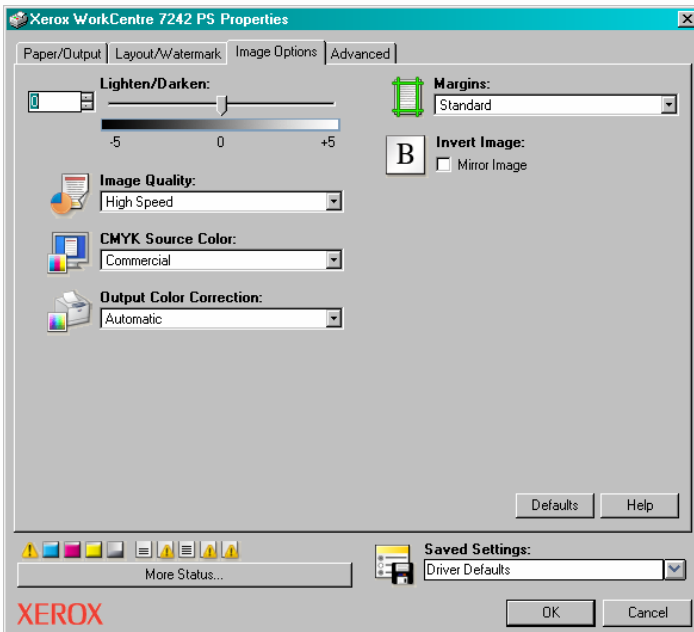




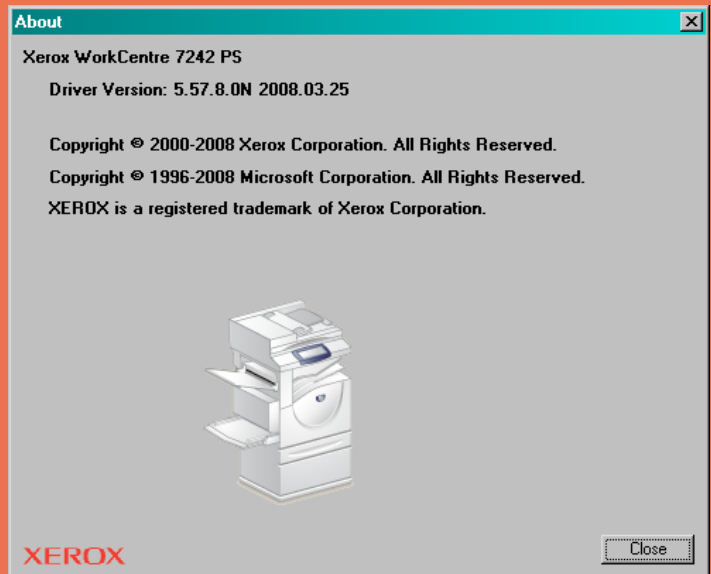
The Post Script driver's Layout/Watermark tab.



The PostScript driver's Advanced tab provides advanced PostScript options not provided by the PCL tab.



The PostScript driver's Image Options tab provides several image-quality adjustments, including Lighten/Darken, Image Quality, CMYK Source Color, Output Color Correction, Margins, and Invert Image options. The Lighten/Darken option allows the user to adjust the overall lightness or darkness of the text and images in their printed documents. The Image Quality option provides users with the option of choosing high speed or high quality.



This tab provides PostScript print-driver version information.

## CLIENT UTILITIES

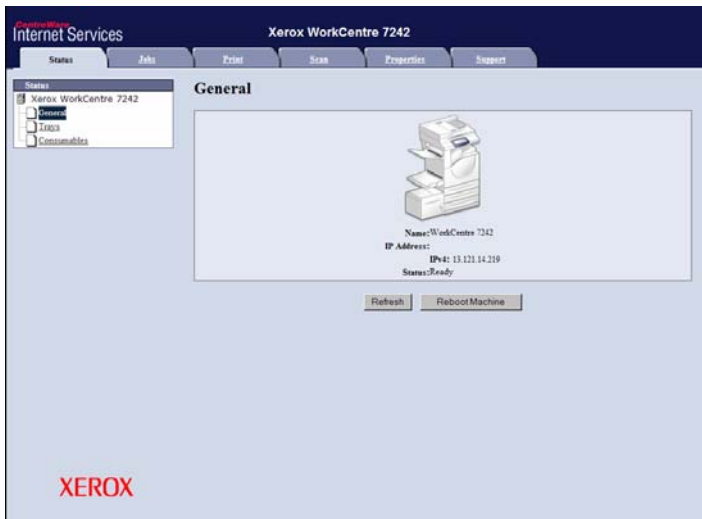
In order to take the best and most efficient advantage of a device and its capabilities, as well as ensure maximum uptime, clients need an efficient way to access and monitor the device. This is true whether the device is an MFP, printer, or scanner.

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.

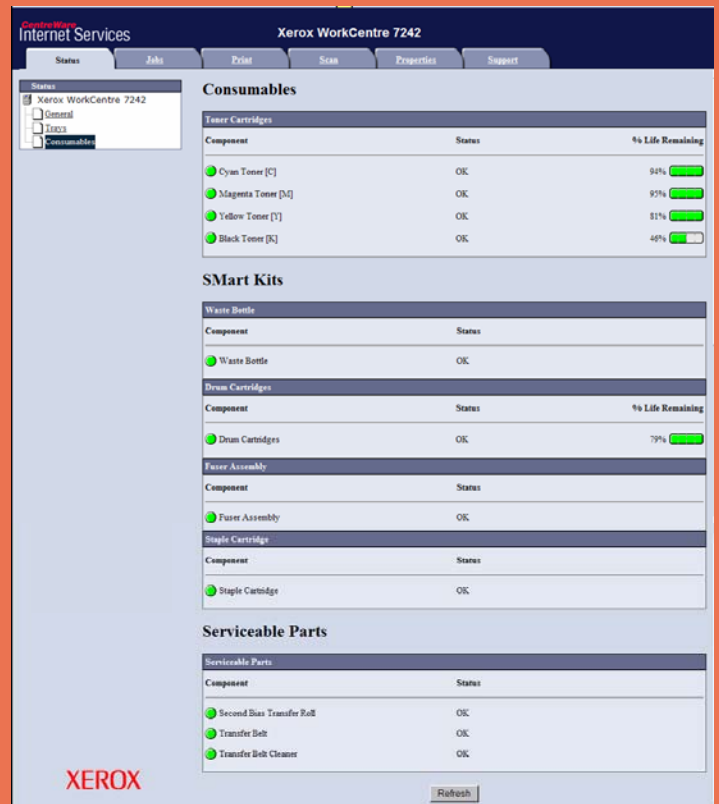
Manufacturers typically provide the user with this information either via a client software utility that is installed on the client's workstation, or via a printer Web page that is accessed via the Web and a Web browser. Some manufacturers may also provide software that automatically indicates (via a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



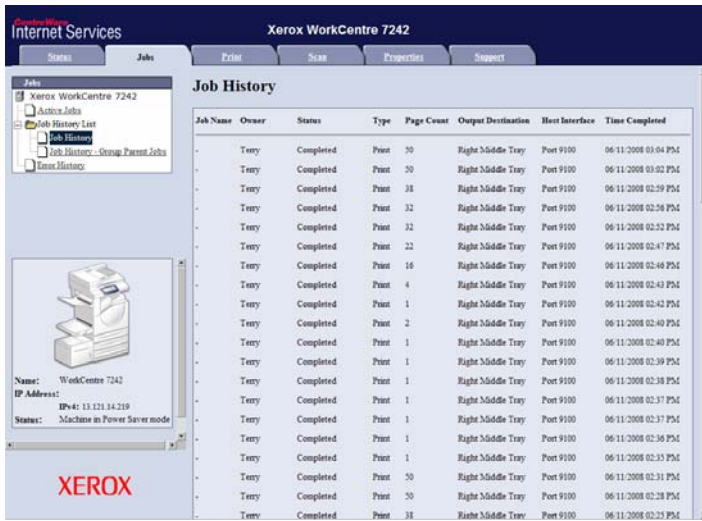
Xerox provides several solutions for monitoring the device and jobs. Among them is CentreWare Internet Services, a Web-based solution that enables clients to view device status and configuration, and enables administrators to manage and configure system and network settings.



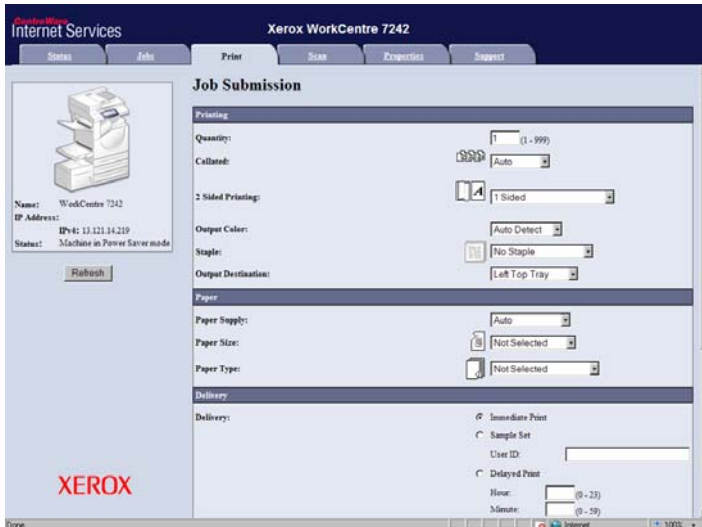
With CentreWare Internet Services, clients can view current device status, current toner levels, and installed paper sizes, types, levels and status.



From CentreWare Internet Services, users can check the status of the following consumables: toner cartridges, waste container, drum cartridge, fuser assembly, and staple cartridge.



Within the Job option, users can check the status of Active Jobs, Job History and Error History.



Users have the ability to log on to the CentreWare Internet Services and submit a print job directly from the web interface.



Users can log on to the CentreWare Internet Services Scan to Mailbox interface and download the stored scan jobs right to their desktop. Users must select the template that contains the destination and other required settings from the template list found on the control panel. Once the job is scanned, users will be able to access the electronic version of the document at their workstations.

## 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 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.

### 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



Both the standard tray 1 and optional tray 2 can each hold 520 sheets of 20 lb./80 gsm media (in from 5.5"x8.5"/A5 up to 11"X17"/A3).



In order to adjust the paper drawers, the user squeezes this green lever and then slides the guide into place.



This paper tray is equipped with an end stop that the user must slide in order to adjust the paper drawer to accommodate the desired paper size. Overall, BERTL found adding paper and adjusting paper drawers to be relatively easy.



The High Capacity tray can hold up to 2,000 sheets of up to 8.5"x11", 16 to 110 lb. index (64 to 216 gsm) long-edge feed only paper.

## ROUTINE MAINTENANCE—REPLACING TONER

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



BERTL Analyst found replacing the WorkCentre 7242's toner cartridge to be easy. The user first press the Machine Status button on the control panel and selects the Supplies tab on the touch screen. The user then lowers a door as shown above.

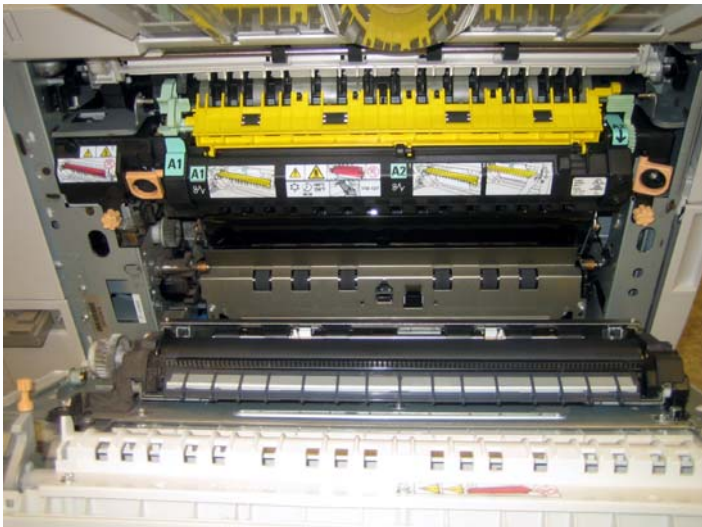


The device automatically rotates the empty toner cartridge into position. The user then removes the old cartridge, and slides in a new cartridge.

## MISFEED ACCESS



The WorkCentre 7242's designated paper-misfeed access areas are highlighted in the above figure. If a misfeed occurs, it is indicated on the touch screen, which displays the misfeed-access area.



To access the fuser and side misfeed-access area, the user first opens the left-side door.



In order to access any misfeeds that may occur in the automatic document feeder, the user lifts up this cover.



Above is the Integrated Office Finisher's misfeed-access area located on the base machine with or without any finisher.



In order to access misfeeds that may occur in the optional high-capacity drawer, the user first opens the top access door, as shown above.

## 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.

### General Office Users

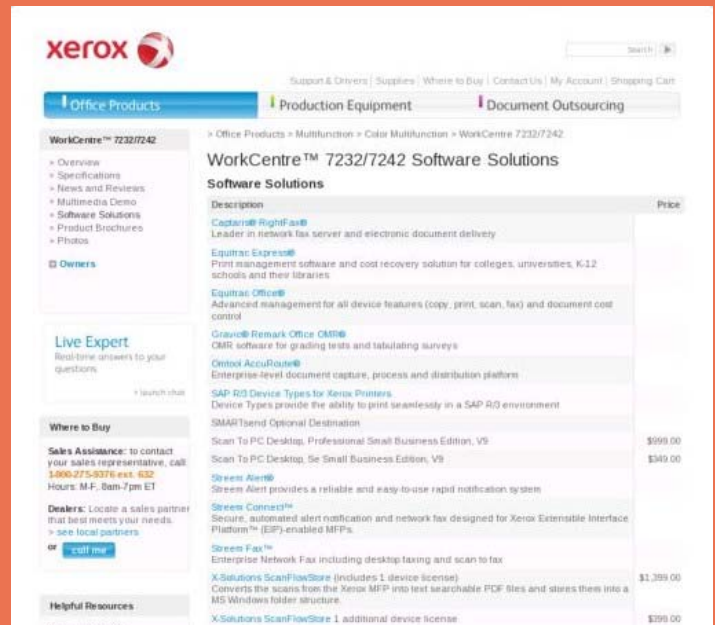
As noted previously, end users want to know if a device is capable of handling a particular job, current status (such as "Ready"), and current supply levels (media, toner, ink), as well as if there are any other jobs waiting to be printed.

### 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.



Xerox provides a host of solutions for managing and monitoring the WorkCentre 7242, as well as solutions for managing files stored in user boxes, account-tracking, direct printing, faxing, and scanning.



Administrators can modify the device's printer default settings and enable or disable the device to automatically print banner pages, set the Secure Print Pass Code Length, and set other basic print defaults.



Administrators can configure and manage both the network and device settings directly from CentreWare Internet Services.



CentreWare Internet Services provides detailed billing information and total impression counts.

## WHAT WE LIKED

- 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 7242's touch screen displays the most common and frequently used copier settings on the Basic Copying 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 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).
- For network and device management, Xerox provides its CentreWare Web Software Suite. CentreWare Internet Services provides an easy-to-use Web-based interface, and can be used to view detailed system and consumables' status. It also enables administrators to manage and configure device and network settings. This Web-based solution enables administrators to monitor and manage a fleet of devices from any workstation on the network.
- Network-management and configuration of the Xerox WorkCentre 7242 via CentreWare Internet Services Network Setup Utility. Administrators can clone multiple devices with settings obtained from one device.
- CentreWare Internet Services provides automatic e-mail alerts when the system requires attention.
- 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.
- Both PCL and PostScript feature bi-directional communication, so that users can view device status from the print drivers.
- Very easy toner and paper replacement.
- Misfeed-access areas are easy to locate and access.

## WHAT WE WOULD LIKE TO SEE

- Overall, BERTL found that the WorkCentre 7242 was very easy to use and maintain on a daily basis.



## 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 7242 shown above equipped with a standard 520-sheet paper drawer and the optional two tray module each with 520-sheet paper drawers.

### Media Handling Checklist

Minimum Media Weight	20 lb. bond (80 gsm)
Maximum Media Weight	80 lb. cover (216 gsm)
Feeds maximum media weight from all sources?	Yes
Offset Stacker	Standard
Finisher	Optional
Hole Punch	No
Saddle-Stitch Finisher	No
Post-Process Insertion (PPI)	No
Trimmer	No
Folder	No
Mail Bins	No

Booklet Maker	No
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## 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. 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*
10	Simplex Originals	20.90	28.7
5	Duplex Originals	32.93	9.1
10	Mixed-Size Originals	43.65	13.7
COLOR MODE			
10	Simplex Originals	20.56	29.2
5	Duplex Originals	32.94	18.2

\*Originals per minute.

## WHAT WE LIKED.

- Paper capacity can be expanded to a substantial 4,720 sheets.
- Optional Integrated Office Finisher: 500-sheet stacker, 50 sheets stapled, single-position stapling
- Optional Office Finisher: 1,000-sheet stacker, 50 sheets stapled, 3-position stapling

## WHAT WE WOULD LIKE TO SEE

- Overall, BERTL was very satisfied with the WorkCentre 7242's paper-handling capabilities.

Designed for mid-sized workgroups with primarily black-and-white images, as well as some color printing needs, the Xerox WorkCentre 7242 performed very well throughout BERTL's tests. Like other Xerox products evaluated by BERTL, Xerox's WorkCentre 7242 displayed solid overall performance.

- The WorkCentre 7242 was exceptionally easy to use and maintain, from the large and easy-to-navigate touch screen to using the print drivers and device-management software.
- Bi-directional communications within the print drivers enables users to check device status from the print drivers, so that they do not have to use any other software tools.
- Xerox's CentreWare Internet Services, which provides detailed device and consumables' status, and provides network configuration, access management and accounting controls for administrators, is easy to use and very capable.
- Xerox's CentreWare Scanning Services is the most powerful, easy-to-use and manageable scanning platform found on MFPs.
- Xerox Extensible Interface Platform (EIP) enables enterprises and developers to develop custom applications, accessible from the touch screen, that can automate and streamline frequent workflows, such as scan-and-distribute.
- Managers will appreciate Xerox's support services, the WorkCentre 7242's ease of use and maintenance, support and training; job tracking/accounting capabilities; and the ease of device monitoring.
- In testing, the WorkCentre 7242's output displayed good to very-good image quality. Density for all four colors in both print and copy modes was good, as was resolution, halftone reproduction, and line and dot control. Image quality displayed by photos was also good.
- In testing, black-and-white network-printer productivity was up to 40 ppm, while color network-printer speed was up to 10 ppm (matching Xerox's rated print speed for both black-and-white and color). Similarly, in copier mode, black-and-white print speed was up to 41.3 ppm, while color print speed was up to 10.9 ppm.

And of course, at its list price of \$9,129 (which includes standard printer controller), the WorkCentre 7242 is economically priced for a mid-size workgroup office color MFP.

Of course, no device is perfect. Document feed speeds could be better as, competitive units routinely scan at or near manufacturer's rated speed. Additionally, all media input and output options are installed around the external duplex tray and must be rolled in and out in order to access most misfeeds. As a result, alignment issues are a concern when the device is subjected to frequent relocation or rough or unsupervised use.

However, considering its many strong advantages—a very good feature set, excellent ease of use, and competitive productivity and image quality—BERTL highly recommends the WorkCentre 7242 for mid-size offices, enterprises and workgroups that require an affordably priced black-and-white digital MFP with color capabilities.

OFFICE

## WHAT WE LIKED

- Tested black-and-white simplex and duplex network-printer speeds in both PCL and PostScript modes were up to approximately 40 ppm, matching Xerox's rated print speed of up to 40 ppm.
- Tested color network print speed was up to 10.1 ppm in both PCL and PostScript mode, matching Xerox's rated print speed of up to 10 ppm.
- Tested black-and-white FPOT as fast as 12.53 seconds in simplex copier mode, and as fast as 18.69 seconds in duplex copier mode.
- Tested black-and-white copier productivity was up to 41.3 ppm in simplex mode and up to 42.3 ppm in duplex mode, matching Xerox's rated copy speed of up to 40 ppm.
- Minimal document-finishing penalty when applying stapling, saddle-stitching, and inserting covers and inserts to copy jobs.
- Fast document-feeder speeds of up to 28.7 opm in monochrome simplex mode and up to 9.1 opm in duplex mode.
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- Tested network-printer First Page Out Time (FPOT) was as fast as 14.55 seconds in PostScript mode and up to 15.80 seconds in PCL mode.
- Images can be scanned, printed and faxed directly to the device's hard drive and stored in a mailbox. Scanned images stored in the mailbox can then be printed at any time (print-on-demand) e-mailed, sent via fax, sent via Internet fax, routed to a computer workstation, an FTP or SMB server, etc.
- No print slowdown when scanning in jobs or when scan-date transfer is underway
- Support for a large number of file formats that include TIFF 6.0, TTN2 with JPEG, G3MH, G4 MMR, JPEG, PDF, XPS Format, MRC (optional), and Text Searchable PDF (optional)
- LDAP compatibility enables users to access the network address book, making destination-management chores easier for network administrators.
- Xerox' Extensible Interface Platform (EIP) permits the integration and customization of virtually any Xerox or third-party workflow application, so that, for instance, enterprises can automate routine scan-and-distribute workflows.
- Good print and copy density in all four colors.
- Good resolution in both copy and printer modes.
- Above-average halftone reproduction in printer mode when printing all four colors (black, cyan, yellow and magenta), as the device was able to correctly produce virtually all halftone shades in BERTL's halftone-evaluation chart.
- Good halftone reproduction in copier mode when printing all four colors.
- The device displayed good line control and above-average dot control
- Good production of photographic images.

- 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 7242's touch screen displays the most common and frequently used copier settings on the Basic Copying 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 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).
- For network and device management, Xerox provides its CentreWare Web Software Suite. CentreWare Internet Services provides an easy-to-use Web-based interface, and can be used to view detailed system and consumables' status. It also enables administrators to manage and configure device and network settings. This Web-based solution enables administrators to monitor and manage a fleet of devices from any workstation on the network.
- Network-management and configuration of the Xerox WorkCentre 7242 via CentreWare Internet Services Network Setup Utility. Administrators can clone multiple devices with settings obtained from one device.
- CentreWare Internet Services provides automatic e-mail alerts when the system requires attention.
- 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.
- Both PCL and PostScript feature bi-directional communication, so that users can view device status from the print drivers.
- Very easy toner and paper replacement.
- Misfeed-access areas are easy to locate and access.
- Paper capacity can be expanded to a substantial 4,720 sheets.
- Optional document finishing for stapling and saddle-stitch booklet making.

## WHAT WE WOULD LIKE TO SEE

- While overall, BERTL was very satisfied with the WorkCentre 7242's copying capabilities, we would like to see faster document-feed speeds.

## About BERTL

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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

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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

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### 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

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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.

## Contact BERTL

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