

BERTL

HIGHLY RECOMMENDED



XEROX Phaser 6180DN



26-ppm Monochrome • 20-ppm Color

Print



100% INDEPENDENT ANALYSIS

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OFFICE



The Xerox Phaser 6180 series is one of Xerox's latest desktop color laser-printer families and is rated by Xerox at up to 20 ppm in color and 26 ppm in black-and-white. This competitively priced desktop printer (\$499 for the "N" model) is geared toward small offices and workgroups, especially those who require good black-and-white and color print quality and versatile paper handling.

Some typical questions businesses must ask themselves when trying to select the right printer for their end users include how many users will utilize the printer on a daily basis, and what types of document will be printed on this device—such as graphics, sales presentations, marketing proposals, day-to-day text correspondence, reports, user guides and manuals. These questions must be considered whether considering the Phaser 6180 or any other color laser desktop printer.

The Xerox Phaser 6180 series prints at 600 dpi and has a recommended monthly volume of up to 60,000 images. The base "N" model includes PostScript 3 emulation and PCL print drivers, 400 MHz processor, support for up to legal-size paper and heavier card stock, standard 128 MB memory (upgradeable to 1,152 MB), standard network and wireless connectivity, and 400-sheet paper capacity. The series also supports operating platforms from Microsoft Windows to Apple Macintoshes, Unix and Linux.

The Phaser 6180 "DN" model BERTL tested included standard automatic duplexing. Options include a paper drawer that brings total paper capacity to 950 sheets, multi-protocol network cards that provides support for DDNS, IPP, Wins, SSL/HTTPS, and a wireless network adapter. Adding the the 256 MB RAM enables the secure print, proof print, and RAM collation.

In the following report, BERTL extensively evaluates the Xerox Phaser 6180DN, including its productivity, image quality, user-friendliness, and ease of routine maintenance.

Device Features Summary

Suggested List Price	Phaser 6180N - \$499 Phaser 6180DN - \$649
Monochrome Print Speed	26 ppm
Mono First Page Out Time	10 secs.
Color Print Speed	20 ppm
First Copy Out Color	10 secs.
Warm Up Time	120 secs. (first time); 30 secs. (subsequent warm up)
Maximum Monthly Print Volume	60,000 pages
Internet/Network Fax	No
Network Scan	No
Output Options	No
Input Options	550-Sheet Tray - \$399 Auto Duplex Unit - \$199 (add for "N" model)
Other Options	Wireless Network Adapter - \$219 Multi-Protocol Network Card - \$199

BERTL analysts were able to install the Xerox Phaser 6180 printer and set it up the network in a matter of minutes. The instructions were easy to follow and the tags were clearly marked for easy removal and installation.



The Xerox Phaser 6180DN model that BERTL analysts tested provides standard duplexing, standard 400-sheet paper capacity (upgradeable to a maximum of 950 sheets), 400 MHz processor and 128 MB of memory (upgradeable to a maximum of 1,152 MB).

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.

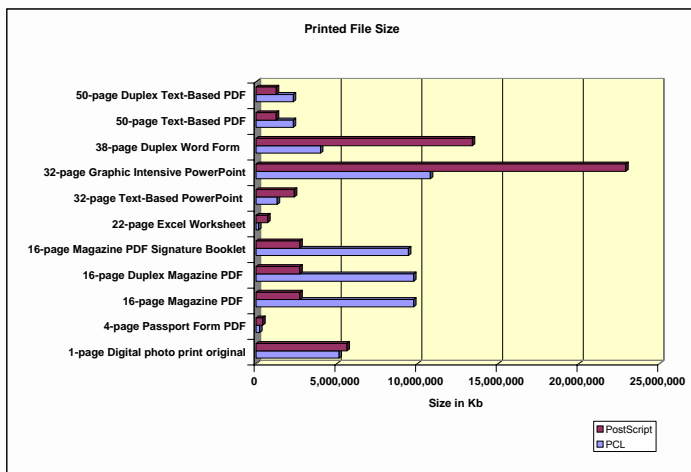
Connectivity

Most devices include Ethernet and USB connectivity out-of-the-box. Some devices include a parallel interface for local connection. 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 based loosely 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 SIZE



Print-Features Summary

CPU	400 MHz processor
RAM and Hard Drive	128 MB
Operating Platforms Supported	MS Win 2000/XP/2003 Server, Vista; Apple Mac OS X 10.2 and higher; UNIX: Solaris 8/9/10, HP-UX 11.0, AIX 4.3.3, Linux: SUSE 9.2/9.3, Turbo Linux 10, Red Hat ES3/ES4, Fedora Core 1, Yellow Dog 3.X
Standard Print Drivers	PostScript 3, PCL 6
Optional Print Drivers	N/A
Standard Interfaces	10/100 Base-TX Ethernet, USB 2.0
Optional Interfaces	Wireless - IEEE 802.11a/b/g, Multi-Protocol Network Card

Network-Bandwidth/Print File Size

	Original file size	PCL	PS
1- page digital photo PDF	4,483 KB	5.14 MB	5.63 MB
4 page Passport Form PDF	79 KB	2.15 MB	4.05 MB
16-page Magazine in PDF	1,780 KB	9.76 MB	2.71 MB
22-page Excel Worksheet	122 KB	1.45 MB	7.14 MB
32-page Text-Based PowerPoint	234 KB	1.31 MB	2.37 MB
32-page Graphic Intensive PowerPoint	4,202 KB	10.8 MB	22.9 MB
38-page Form Word Document	912 KB	3.99 MB	13.4 MB
50-page Text-Based PDF	170 KB	2.30 MB	1.25 MB

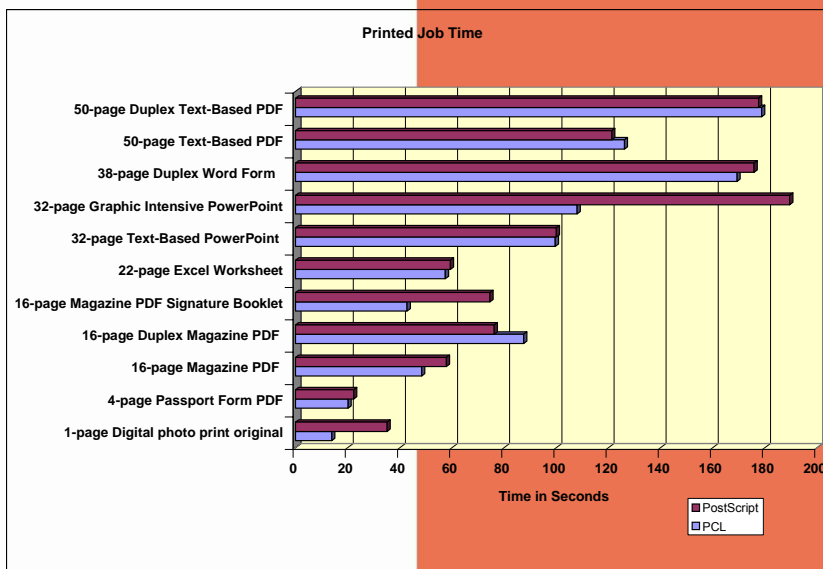
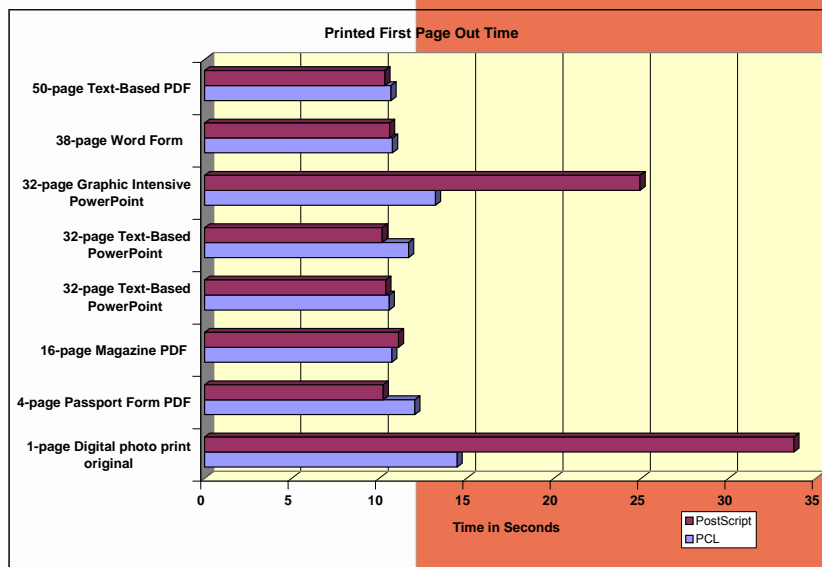
PRODUCTIVITY

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 printer 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. Add into the equation other factors, such as concurrency and contention, and one would have a real world situation.

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:



WORKFLOW

Concurrency or Contention?

MFPs, by their very nature, are designed to handle multiple tasks, acting as the printer, copier, scanner, and even fax machine. BERTL looks at how these tasks affect each other.

In BERTL's concurrency test, a large print file is submitted for printing. When spooling has completed, the rate at which pages are output is measured. The BERTL analyst then carries out various tasks such as scanning in a copy job, to see if the print output rate is affected.

Batch Printing

Batch Printing: In many situations, people are often faced with multiple files that need to be treated as a single print job. There are two main reasons for this:

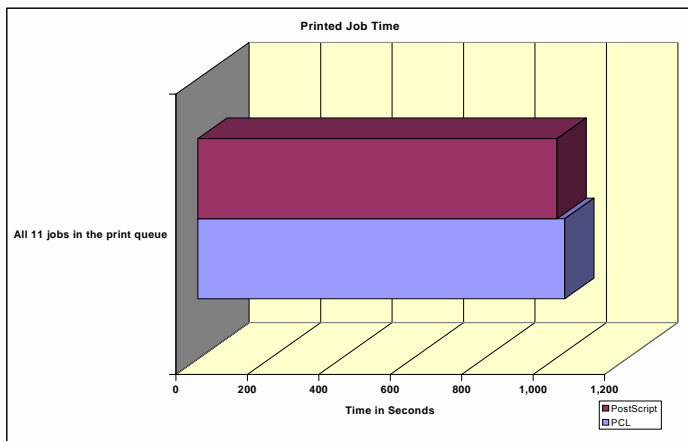
- 1) Multiple authors contributing to a single document
- 2) Collated sets comprised of multiple individual documents.

These two workflow scenarios put MFPs and printers to task, as they demand more than just the ability to spool, RIP, and print a file as fast as possible.

Network Workload

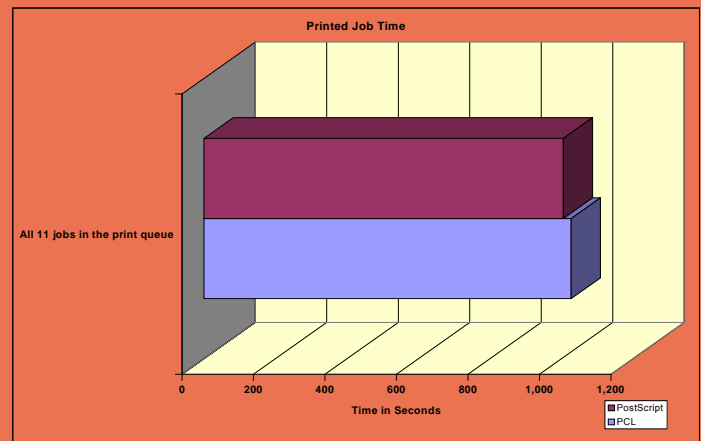
Network-printing devices may often face a queue of jobs stacked up for processing during busy periods of the day.

During BERTL's network workload tests, analysts queue a series of jobs at a paused print driver. The purpose of the test is to illustrate how well a device handles a stream of jobs and how the queue's make-up can have a major impact on a device's performance. BERTL is not trying to suggest that a series of jobs is an example of a typical office application, as this would be misleading.



Concurrency Test Results	
Print slowdown when scanning in copy job	Not Applicable
Print slowdown when scanning originals	Not Applicable
Print slowdown when scan-data transfer underway	Not Applicable

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



PRINT-ON-DEMAND

Ever since manufacturers began including hard drives with their MFPs and printers, they have looked for ways to offer print-on-demand capabilities. With print-on-demand, users can quickly print a document whenever needed, instead of having to store hardcopy.

The most basic is the ability to store a document in device memory for instant reprinting from the walk-up control panel. A growing number of printers and MFPs provide this.

The other major benefit of print-on-demand is the removal of the RIPping process when printing large documents repeatedly. With print-on-demand, the file is stored on the device in a post-RIPed format, eliminating the spooling and RIPping process that usually precedes printing. This saves users time, and reduces the network workload.

With a growing number of devices now supporting direct Adobe PDF printing, many printers and MFPs now also support USB direct interface printing. With this feature, users can simply insert a USB flash memory device containing a PDF (or other supported file format) into the device's USB direct interface (usually located on or near the printer's control panel). The files contained on the USB flash memory device are then displayed on the printer's touch or LCD screen. The user simply scrolls down to the file they would like to print.

Do All Devices Offer the Same Capabilities?

There is a large degree of differentiation between products and manufacturers in this area. Those interested in print-on-demand should look carefully at the functionality offered by each manufacturer.

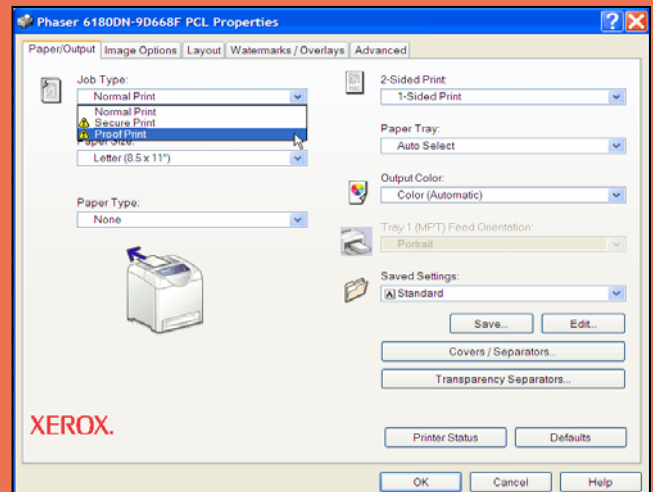
Areas of differentiation include issues such as the ability to manage stored files, as well as the ability of users to make job settings (such as simplex/duplex, paper size, stapling, etc.). Other systems enable users to combine single files into one job, while still others enable users to view and manage stored jobs from a desktop computer utility.

The Xerox Phaser 6180 model series does not offer the Print-on-Demand feature as a standard, but the proof print and secure print features that stores documents temporarily using the device's memory can be optionally purchased. This feature would allow users to print documents stored on the device's RAM with or without a PIN entry.

Since the Xerox Phaser 6180DN model BERTL tested did not have the Print-on-Demand feature installed, our analysts could not test its Print-on-Demand option.

Print-on-Demand Features Summary

Job Storage From the Device?	No
Job Storage From the Desktop?	No
Finishing Options Included at Time of Storage?	No
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?	No
Multiple Jobs Can Be Selected and Printed as Separate Jobs?	No
Stored Jobs Can Be Edited After Storage?	No
Stored Jobs Can Be Combined With Send Feature	No



With Proof Print, the device only prints a single copy of the job. Users can review the copy, and, if it meets with their approval, continue producing the additional copies. If changes need to be made, users can cancel the print job. With Secure Printing, the device only prints the job when the user enters their PIN at the control panel. These features are only available if the upgraded 256 MB RAM is purchased and the RAM disk is enabled.

WHAT WE LIKED

- Standard out-of-the-box network connectivity.
- Average to above-average image quality, with good photo and text printing.

Optional proof and secure printing.
- Internet Service's job queue helps users determine the best time to print large files or a large number of print jobs.
- As with most Xerox print drivers, the Phaser 6180's print drivers are easy to use and navigate.

WHAT WE WOULD LIKE TO SEE

- The ability to view, cancel, pause or promote print jobs currently in queue would be an advantage.

Direct PDF printing.
- BERTL analysts would like to see an easier way to enter passwords, such as a touch keypad. Instead, users must scroll through the menu system using up/down arrows
- The ability for users to receive automatic job-completion alerts when print jobs have completed successfully, which would eliminate time spent traveling to the device to find out if the job has been completed.

IMAGE QUALITY

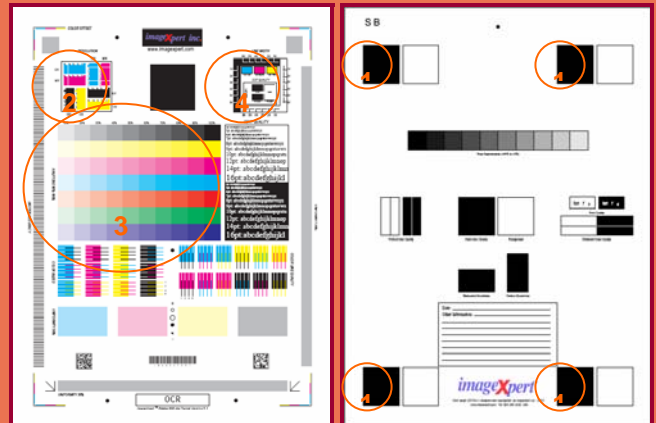
BERTL evaluates the output of several “test targets” in order to determine image quality. Following are descriptions of key elements of image quality. Note the numbered examples on each of the test targets shown in the right column.

Office Color Image Quality

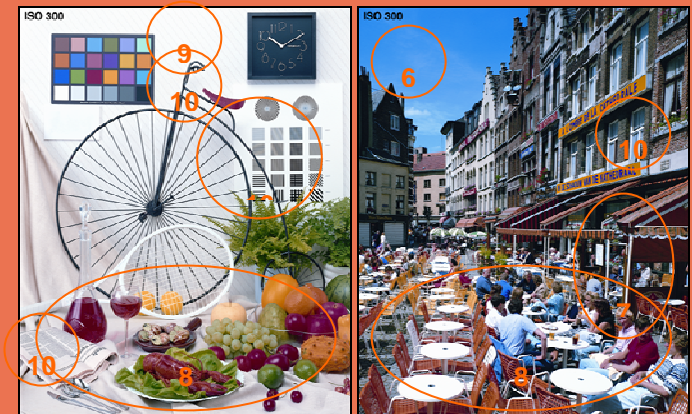
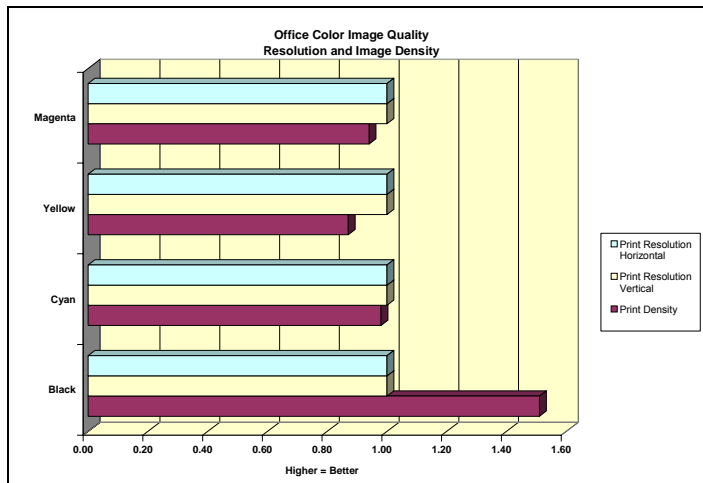
1. **Density of Solid Areas** - Better contrast; more vivid overall images
2. **Line Work** - Better production of lines and text
3. **Halftones** - Better production of photographic and screened images
4. **Negative/Positive** - Better production of fine detail

Photographic Color Image Quality

5. **Fleshtones** - 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



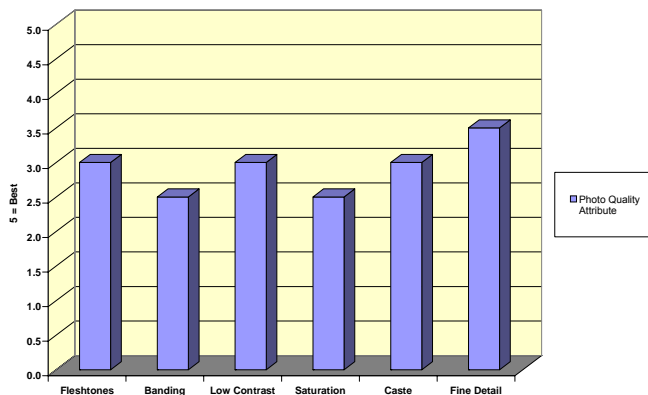
BERTL uses ImageExpert printer test targets for the evaluation of printed image quality. BERTL technicians measure image density and evaluate the device’s ability to produce a full range of halftones and various sizes of negative/positive text, dots and lines in each primary printing color (CMYK).



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.

BERTL technicians use an X-Rite 408 Color Reflection Densitometer in order to measure color density and dot gain of prints and copies.

Printed Photo Image Quality



ACCESSIBILITY

In the United States, Section 508 legislation prohibits government agencies from purchasing devices that are not accessible to those with physical impairments. For this reason—and the corporate world’s increased focus on delivering a better work environment for all—many MFP manufacturers are increasingly providing more user-friendly features for physically-impaired users.

Common design features include tilting control panels, which give wheelchair-bound users a better view of the screen, and larger display options for those with impaired vision. Voice navigation and Braille also are becoming increasingly popular. Easy access to the paper path for misfeed removal and front access to toner supplies also make a device more user-friendly.



Most disabled users will be able to access paper drawers in order to replenish paper without any problems. Paper misfeeds can be easily removed from the front of the device by pressing the “A” button on the upper right side of the device. When a paper misfeed occurs, the control panel displays a descriptive error message.

Accessibility Features Summary	
Routine maintenance tasks performed at the 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



Some disabled users in a wheelchair may have a slight problem viewing and using the control panel, but most users will not have a problem navigating through the screens and retrieving print jobs from the top of the output tray.

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.

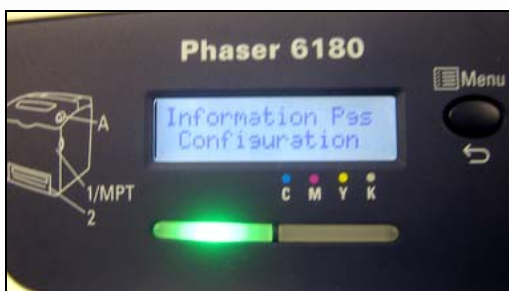
A control panel's ease of use—or lack of—can often have a significant affect on user productivity. The harder it is to select frequently used options such as duplexing, document finishing, etc., the more time the user has to spend programming the device and the less productive they are. In the chart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



The Xerox Phaser 6180 incorporates an intuitive and easy to navigate menu system, providing helpful walkthrough advice for novice users as well as seasoned users. Users can press the up and down arrows to move between menus, select the OK button to accept the choice, or press the return button to exit the specific screen.



The administrative sub-menus allow administrators to set up system settings, network settings, control panel lock out, and other print settings.

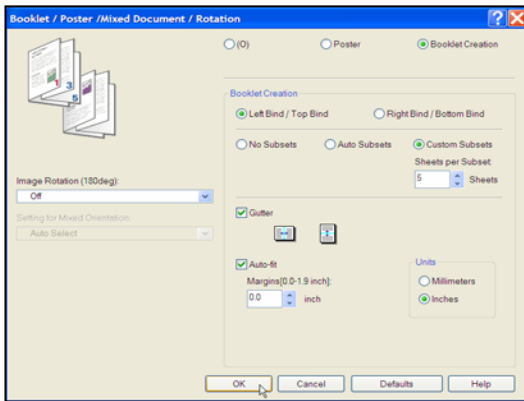


The Information Page menu provides sub-menus that enable users to print out configuration pages. Users with administrative rights (i.e., a password) can configure settings for network connectivity, job history, error history, and accounting.

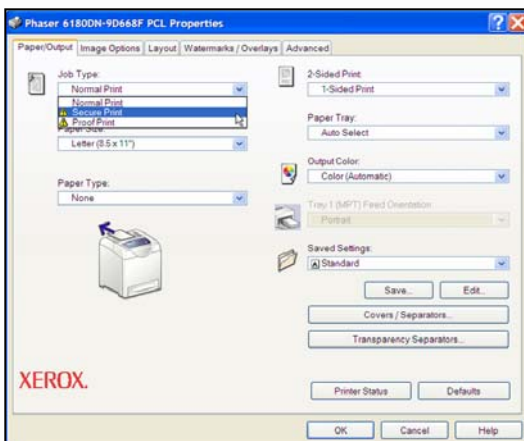
PCL PRINT-DRIVER

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, which was 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.

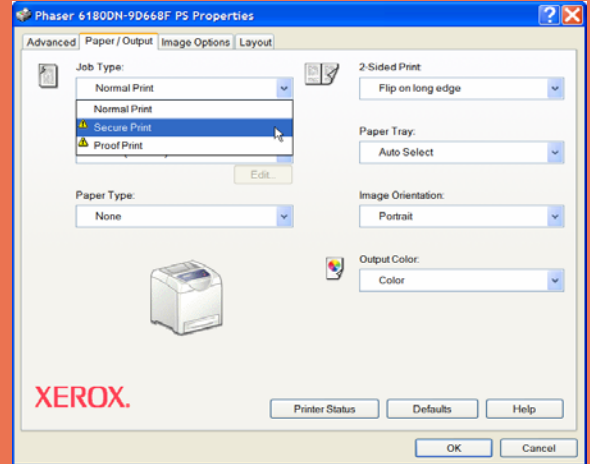


If the min. 256MB RAM disk is purchased, "Secure Print" can be selected from the Job Type drop down list, on the Paper/Output menu. Enter a User Name, a numeric password, and an optional document name. If a password is not entered, then the document will print without a password entry.

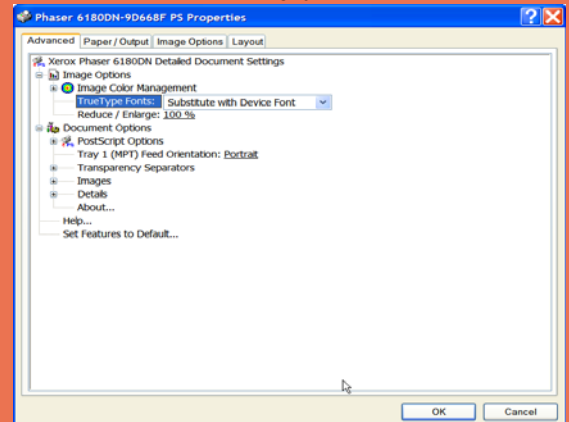


The booklet enables users to produce booklets that can be folded and stapled manually.

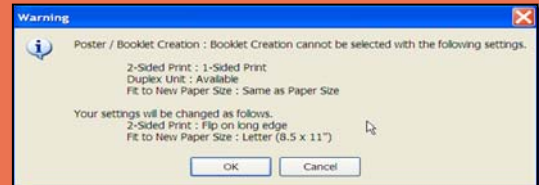
POSTSCRIPT PRINT-DRIVER



The PostScript driver is very similar to the PCL driver and includes the optional Secure Print and Proof Print. Secure Print and Proof Print are selected from the Job Type drop down list located on the Paper/Output menu.



The PostScript driver's Advanced tab provides color-management capability, options for separators, etc.



The printer driver provides a warning message when incompatible print-job settings are selected.

CLIENT UTILITIES

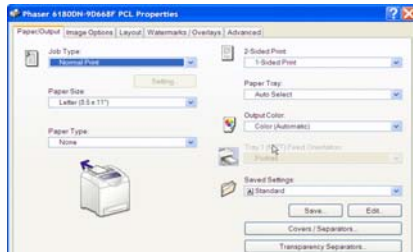
In order to take best advantage of a device's features and capabilities, clients need an efficient way to access and monitor the device. Indeed, an efficient device-management software system is critical in order for a client to take maximum advantage of a device's feature set, be it a printer, fax, scanner or MFP.

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 paper sizes, or provides certain document finishing, such as stapling or saddle-stitch booklet making.

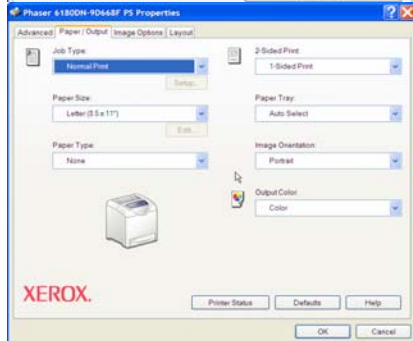
Second, users want to know a device's current status—if it is ready to print or is offline, for instance. Third, they may also wish to know whether it is equipped with sufficient supplies, such as toner, paper and staples, to be able to produce their job,

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 printer problem.

From the PCL printer driver Properties menu, the user submits their print jobs by selecting the correct paper size, type, tray, and print settings.



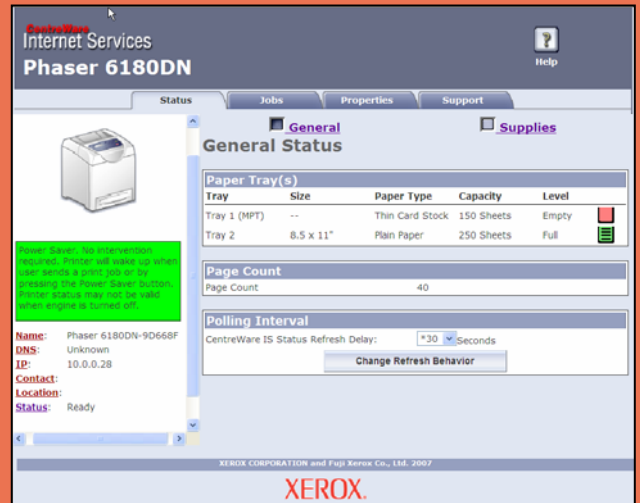
When using the PostScript print driver, which has a similar same look and feel as the PCL driver, the user submit print jobs in a similar manner. Users can select the job type, paper size and type, simplex/duplex, paper tray, portrait/landscape orientation, and color and black and white. To view a list of current print jobs on the job queue, users can log on to the



CentreWare Internet Services. This will display document details such as the author, document name, print port, and the job status.



CentreWare Internet Services' home page; Xerox's Internet Services is accessed via Web browser.



The General Status page displays the status of paper drawers (full or empty), and a count of total printed pages. The Supplies Status page indicates the percentage of remaining toner for each toner color.



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. 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 Replacement

Changing the toner or imaging cartridge is a necessary task that traditionally is avoided by some for fear of toner dust leaking on clothing or hands. However, most units today offer clean replacement of toner supplies, and there is very little risk of toner leakage.

Clearing Paper Misfeeds

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

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

Loading Paper

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

Maintenance-Features Summary

Black Toner Yield*	Standard: 3,000 pages High Capacity: 8,000 pages
Color Toner Yield*	Standard: 3,000 pages High Capacity: 6,000 pages
Imaging Unit Life	All-in-one toner/Imaging unit
Fuser Life	N/A
Developer Life	N/A
Toner Refill During Printing?	No
User Replaceable Imaging Unit?	Yes (all-in-one toner/imaging unit)
User Replaceable Fuser Unit?	Yes
User Replaceable Waste Container?	N/A
User Replaceable Original/Paper Feed Rollers?	No

*Manufacturer's stated toner yield using originals with 5% area coverage per color



The Phaser 6180's control panel provides helpful instructions for guiding users through the paper misfeed-removal process. The steady red light indicator alerts users that maintenance is required.

ROUTINE MAINTENANCE (CONTINUED)



Most of the Xerox Phaser 6180's maintenance can be performed in a matter of minutes, including replacing the four toner cartridges and the fuser unit, which sits above the toner.



The button marked "A" must be pushed to release the front cover so that the toner cartridges are exposed and can be replaced. Replacing the color-coded toner cartridges is very easy. The standard toner cartridges yield up to 3,000 pages, while the high-capacity cartridges yield up to 8,000 pages.



Most paper misfeeds can be easily removed from the front or near the top of the device. BERTL analysts did not encounter any problems or any hidden misfeed points during our vigorous test regimen.



The toner cartridges, fuser unit, and transfer unit are all located at the front of the device, providing easy access for replacement. Each component can be replaced in a matter of minutes.

WHAT WE LIKED

- It is easy to clear misfeeds, as users do not have to remove components such as transfer or fuser units. There are no hidden access points that could complicate removing misfeeds.
- The display panel is easy to read and navigate. The user interface is easily navigated with its intuitive interface and sub-menus.
- Toner changes are easy, and are performed from the front of the device.
- E-mail alerts can be set up that direct key personnel to initiate service calls, order consumables, remove misfeeds, or perform other maintenance tasks.
- Prompts on the display panel guide the user through the steps required to access and remove misfeeds.
- CentreWare Internet Services enables users to directly access online support tools such as online manuals, flash tutorials, software, printer drivers, and technical-support information.
- Filtering IP addresses to within a specific range adds security.
- Management tools such as MailLinx Alerts and PrintingScout enable users to track and monitor their print jobs.

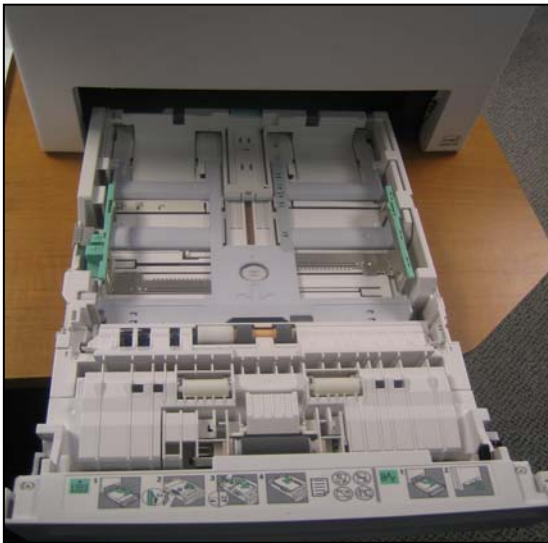
WHAT WE WOULD LIKE TO SEE

- The ability for an administrator to promote, cancel or pause print jobs from the computer desktop or control panel would enable administrators to make sure high-priority jobs are completed first, as well as cancel jobs sent by mistake.

PAPER INPUT

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

A device's paper-handling capability basically concerns how it can handle two key criteria: the paper size and paper 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 paper capacity, the less time users will spend reloading paper.



Making size adjustments to the main paper drawer is easy. However, the paper drawer must be pulled completely out of the device in order to load paper. While this makes loading paper easier, users must be careful not to drop and damage the drawer.



The bypass tray supports multiple media types, including mailing labels, thick card stock, transparencies, glossy paper and envelopes.

Paper Handling: Input-Features Summary

Standard Paper Capacity	250-sheet drawer 150-sheet stack bypass 400 total sheets
Optional Paper Supplies	550-sheet drawer
Maximum Paper Capacity	950 sheets
Maximum Paper Size	8.5 " x 14" (legal)
Minimum Paper Size	3" x 5"
Maximum/Minimum Paper Weight (bypass)	17 to 40 lb. bond 40 lb. to 80 lb. cover
Maximum/Minimum Paper Weight (main trays)	5.8" x 8.2" to 8.5" x 14"
Maximum/Minimum Paper Weight (duplex)	17 to 32 lb. bond 40 to 60 lb. cover
Automatically Senses Paper-Size Changes?	Yes
Drop-In Loading of Entire Ream of Paper?	No



A convenient reference chart above the bypass tray provides helpful toner replacement information and maximum paper capacity for different media types.

PAPER OUTPUT AND FINISHING

Office workgroup devices' paper-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), with others handling 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 mail bin units that allow each user to send jobs to their own tray. However, most mail-bin 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 jobs. These inserts can include chapter covers, color pages and specialty material, such as heat-sensitive materials that may be damaged if run through the device. The advantage of course is that no human intervention is required to manually insert pages into completed jobs.

Output/Finishing Features Summary

Standard Output Tray Capacity	300 sheets
Optional Output Option(s)	No
Optional Output Tray Capacity	No
Maximum Stapling Capacity	N/A
Maximum Stacking Capacity	300 sheets
Maximum Saddle-Stitch Capacity	N/A
Hole-Punch Option(s)	No
Physical Mail Bin Option(s)	No
Folding Option(s)	No
Post Process Inserter Option(s)	No
PPI Capacity	N/A



The Xerox Phaser 6180 can print on covers, separator pages, transparencies, and envelopes as shown on the photos below.



WHAT WE LIKED

- The ability to accommodate up to 8.5" x 14" paper and up to 80 lb. cover stock through the bypass tray and main paper drawer.
- An optional universal paper drawer be added for a total paper capacity of 950 sheets.
- A wide range of specialized media can be fed via the bypass tray including transparencies, labels, card stock, custom paper sizes, covers, envelopes, index cards, preprinted paper and photo paper.
- The paper adjustment guide located on the side of the paper drawer provides easy adjustment when changing paper sizes and loading additional paper supply.
- The ability to print two-sided booklets that can subsequently be placed in a Post Process Insertion (PPI) unit to create a finished saddle-stitched booklet. Additionally, users can print multiple pages (up to 32) on a single sheet.
- Tight stacking of collated sets makes offline finishing options such as perfect binding or professional punching less time-consuming.
- Duplexing is provided "out of the box" for the Phaser 6180DN model and is an optional for the base "N" model. With some other printers in this class, duplexing isn't provided as either standard or optional.
- The Xerox Phaser 6180 provides front/back cover capability, and page insertion, for the creation of professional-looking presentation materials. Cover stock and page separators can be of a different media type and weight, and can be pulled from different paper sources.

What We Would Like To See

- The ability for the main paper tray to accommodate a full ream of media, so that replenishing paper is minimized.
- The ability to load paper and toner while the device is running saves improves uptime.
- A paper indicator on the front of the main paper tray in order to provide users with a quick indicator of how much paper remains in the tray.

Background

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 job, current status (such as "Ready"), and supply levels (paper, toner), as well as if there are any other jobs waiting to be printed.

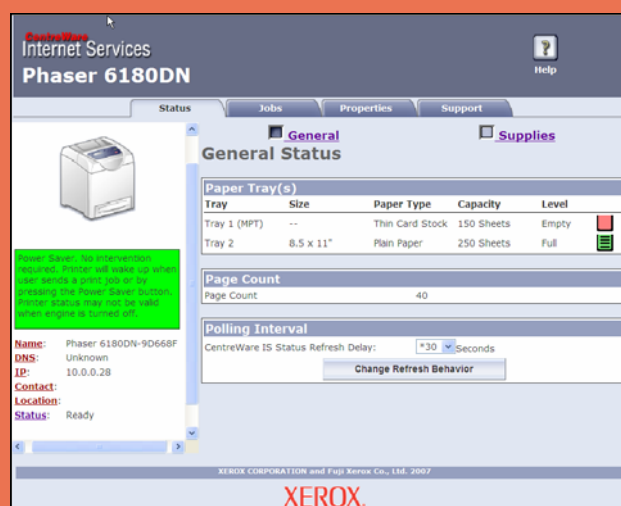
Administrators

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.

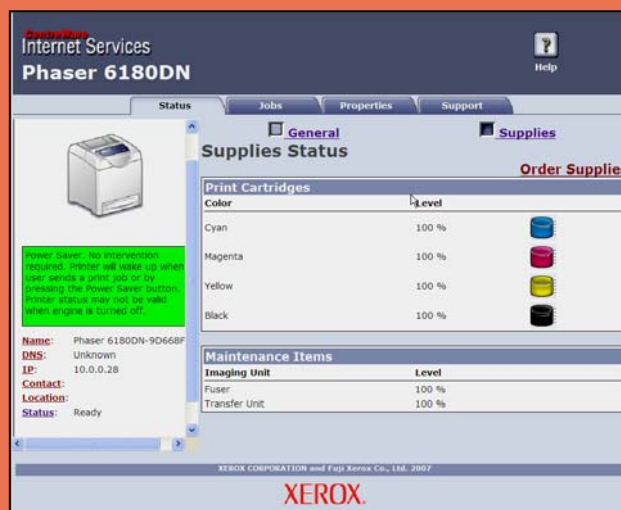
Due to the nature of a device's Web server, this capability is usually limited to an individual device. However, many manufacturers also include a network device-management fleet tool, which allows for the concurrent monitoring and management of multiple devices connected to the network. Many also provide 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.

Device-Management Features Summary

Web-based device monitoring	Yes
Executable-based device monitoring	Yes
Group management of network devices	No
Monitor 3rd-party MIB-compliant network devices	No
HP Web JetAdmin compatible	No



The General Status and Supplies Status pages indicate the status of the printer, paper drawers and toner.

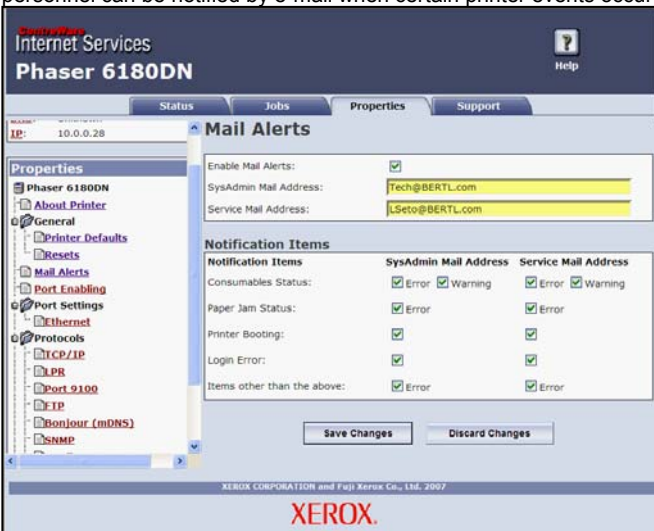




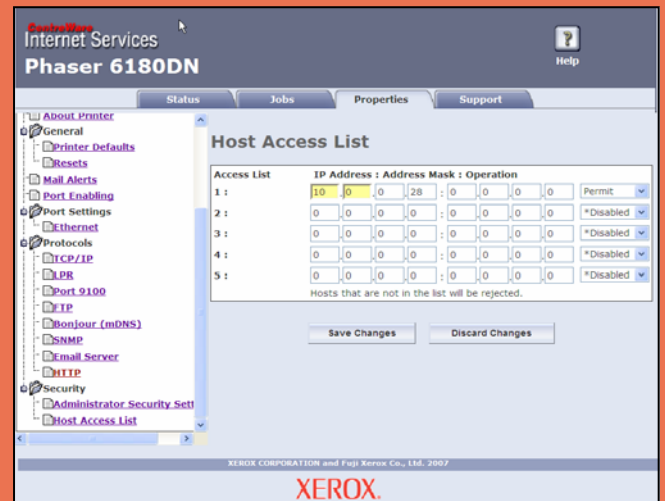
The Job List page above displays the current print jobs in queue. The Job History screen below displays a detailed job log of all previously printed jobs.



Below: With Xerox's CentreWare Internet Services, up to two key personnel can be notified by e-mail when certain printer events occur.



Only authorized users and administrators can log in and change settings.



The ability to configure up to five IP filtering addresses provides a safer network environment.



The Xerox Support Tools page provides direct links to support tools, including links for downloading software and printer drivers.

WHAT WE LIKED

- E-mail notification can be setup by the administrator to alert up to two personnel to respond to service calls, misfeed removal, low consumables, etc. These e-mail alerts can be set so that they are sent on a pre-defined schedule or when an event is triggered.
- Management tools such as MailLinx Alerts and PrintingScout enable administrators to track jobs and monitor consumables.
- The ability to access online support tools via CentreWare Internet Services, as well as download software and print drivers, and quickly access technical support information located on the Xerox Web site.

WHAT WE WOULD LIKE TO SEE

- The ability to promote, cancel or pause print jobs from the desktop and/or at control panel would enable administrators to make sure high-priority jobs are printed first, and would also enable them to cancel jobs sent by mistake.

BACKGROUND

It seems high-tech security is never out of the news, with reports of information theft and hacking making headlines almost every day. And, unfortunately, by their very nature, network printers and MFPs are security risks if not managed correctly.

For instance, advanced network connectivity options open ports to hackers. Industry-standard Java and Web browser design elements are vulnerable to virus attack. Large hard drives store a latent copy of every document flowing through the device data for years. Devices link directly to core network components such as the LDAP address list or the central file server. Plus, fast communication options let insiders send information to the outside with no method of being traced.

Security and data-compliance regulations such as Common Criteria (CC) certification, HIPAA, Gramm Leach Bliley, FERPA, SEC, FSMA, and the Patriot Act are aimed at safeguarding information, and force companies to conform to best practices in document and data-security management.



With CentreWare Internet Services, the administrator can prevent users from changing printer settings on the control panel.

Security-Features Summary

Hard-Drive Overwrite	No
Removable Hard Drive	No
Private Print	Optional
Encrypted Printing	No
Secure Fax	No
Encrypted PDF Send	No
Network Authentication	Optional
LDAP Authentication	No
Kerberos Authentication	No
SNMP v3.0	Info not available
IPv6	No
SSL	Optional
IP Filtering	Yes
MAC Filtering	Info Not Available

PRIVATE/SECURE PRINTING

The purpose of private/secure printing is to keep printed documents secure. It is an important feature when devices are shared and/or out of sight of the user.

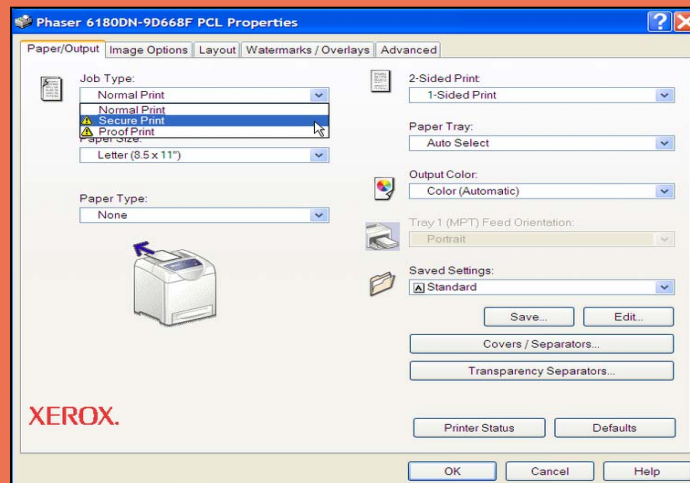
In the past, when a user printed a document containing sensitive or confidential information, unless the user “stood guard” at the printer, the printed document would simply be output to a tray or bin. Other users, including those searching for *their own* print jobs, could then easily view and read any other jobs lying in the tray.

With printers that provide private printing, however, the user typically enters a code of their choosing in the print driver before printing. Even after the user executes the print command, the device will not actually print the job until the user enters their code at the device’s control panel.

Some printers’ control panels display the file names of all held private jobs. This can be a problem if even a file name (such as one detailing a merger or litigation) must be kept confidential. Other control panels only display the file name when the user actually enters their code, providing more security.

Private / Secure Print for the Xerox Phaser 6180
The Xerox Phaser 6180N does provide standard secure (private) printing. However, secure printing is enabled with the addition of 256 MB RAM. With the additional RAM, the printer will temporarily store documents in device memory for both proof and secure printing.

In order to use secure printing, the user selects “Secure Print” from the drop-down menu on the Paper/Output tab. The user must then enter their user name and a personal identification number (PIN). They can use the original native filename, or create a new file name. Sometimes a new file name is required, because even the original file name (such as a file name specifying a company merger) must be kept confidential (other users should not be able to view it by scrolling through the control panel’s menu system). The user submits the print job, but the job does not actually print until the user locates the job at the control panel and enters their PIN.



Users select “Secure Print” from a drop-down list on the Paper/Output tab.

WHAT WE LIKED

- IP filtering, for a safer network environment.
- Administrators can prevent unauthorized users from changing printer settings.
- Private printing, with the ability to create a new file name.

WHAT WE WOULD LIKE TO SEE

- The ability to store documents in both private and public folders would provide users with additional security.
- IPv6 would provide an additional level of defense against potential security breaches.

BERTL found the Xerox Phaser 6180DN simple and intuitive to use and maintain on a daily basis. In testing, the printer tended to be slightly more productive in PCL mode than PostScript mode, with somewhat faster First Page Out Times (FPOTs) and faster print speed when printing various test documents.

Image quality produced by the printer should be sufficient for most business applications. In testing, printed photo image quality was slightly above average. This means the printer was able to produce pleasing color photos and graphics. Text and fine lines were crisp and readable down to 4 pt., so that users should expect good quality when producing black-and-white text output.

The Phaser 6180DN is also above par when it comes to installation and ease-of-use. The printer can literally be set up in minutes. Toner cartridges are conveniently accessed from the front, are color-coded, and very easy to replace. Paper jams are also accessed from the front. BERTL did not observe any paper jams in testing, so analysts instead simulated jams in order to see how the device would react. Its response was good, as the Phaser 6180DN's control panel displays helpful messages that will help even novice users remove jams.

Of special note is Xerox's CentreWare Internet Services, which is exceptionally user friendly and provides many useful capabilities. With just a quick glance at Internet Services' home page, users can see the current device status, whether paper drawers are empty or full, and the remaining toner.

At a list price of \$499, the Phaser 6180N is competitive with other desktop color laser printers targeted for small-workgroup business use. Although the "N" model does not provide duplexing, duplexing is available with other configurations and as an option. This is in contrast with other printers in its class that do not provide duplexing as either standard or optional.

Overall, the Phaser 6180 is a solid, well-built printer that is competitively priced, performed well in testing, and should perform well for small business workgroups that require good business image quality and relatively fast print speed in both color and black-and-white.



The Xerox Phaser 6180DN as tested.

WHAT WE LIKED

- Out-of-the-box standard network connectivity.
- CentreWare Services is exceptionally user friendly and provides a job queue, automatic e-mail alerts, links to support and downloadable software, etc.
- Versatile paper-handling, including front/back cover capability, page insertion; cover stock and page separators can be of a different media type and weight, and can be pulled from different paper sources.
- Optional or standard duplexing depending on configuration.
- Easy maintenance via the front of the device.
- The ability to print two-sided booklets that can subsequently be placed in a Post Process Insertion (PPI) unit to create a finished saddle-stitched booklet. Additionally, users can print multiple pages (up to 32) on a single sheet.

WHAT WE WOULD LIKE TO SEE

- The ability to view, cancel, pause or promote print jobs currently in queue would be an advantage.
- BERTL analysts would like to see an easier way to enter passwords, such as a touch keypad. Instead, users must scroll through the menu system using up/down arrows
- The ability for users to receive automatic job-completion alerts when print jobs have completed successfully, which would eliminate time spent traveling to the device to find out if the job has been completed.
- The ability for an administrator to promote, cancel or pause print jobs from the computer desktop or control panel would enable administrators to make sure high-priority jobs are completed first, as well as cancel jobs sent by mistake.

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.

Contact BERTL

200 Craig Road
Manalapan, NJ 07726 USA
Tel 1.732.761.2311
Fax 1.732.761.2312
Email: info@bertl.com
www.BERTL.com