



Test Report

MONOCHROME LASER PRINTERS

Lexmark T632n

40 PPM



Test period duration:

Three months, including
a 200,000-impression durability test

Manufacturer:

Lexmark International, Inc.
Lexington, KY
Made in China

Manufacturer's Web price: \$1,539 U.S.

Serial number: 99108KV

Type: Desktop, laser printing, cut-sheet bond paper, dry toner, monocomponent developing, heat and pressure fusing.

Controller: Lexmark controller based on a 350-MHz processor.

Manufacturer's rated engine life: Lexmark does not publish this information.

Manufacturer's maximum rated monthly volume: 200,000 impressions.

BLI's recommended monthly volume for optimum performance: Up to 100,000 impressions.

GENERAL APPRAISAL

The best-priced 40-ppm monochrome laser or LED printer on the market, the Lexmark T632n provided an outstanding overall performance during BLI's 200,000-impression evaluation, completing the three-month test period without requiring any service or recording a single paper jam. Based on a 350-MHz processor, BLI's test unit also produced raster times for all tested file types (TIFF, JPG, PDF, Word and PageMaker) that are among the best for tested monochrome printers, in addition to an above-average simplex efficiency rate from the PostScript driver (the unit was not configured with the optional duplex unit). Furthermore, at its maximum true resolution of 1200 x 1200 dpi, the T632n earned BLI's highest image quality rating for all types of print jobs (text, line art, halftones and solids),

continued

General Appraisal *continued*

producing clean characters and smooth line art, with minimal toner splatter around text and no stair-stepping evident in circular lines. (It should be noted that when printing at true 1200 x 1200 dpi, the T632n outputs print jobs at about half of its rated speed.)

The T632n also offers good ease of use from the desktop via its print drivers and bundled utilities, and its auto-install process makes setup of the unit quick and easy. In addition, the T632n offers easy procedures for loading paper, adjusting paper drawers and clearing paper jams. The unit employs user-replaceable consumables and supply items, including a convenient all-in-one print cartridge (containing both the toner and the drum), replacement of which was clean and easy, as well as a maintenance kit (containing the fuser, transfer roller and pick rollers), which did not require replacement during the test period. The unit's energy-save mode reduces power consumption from 639 watts while printing to 15 watts after a specified period of time.

Employing its standard memory capacity of 64 MB (expandable to 320 MB), which is competitive for monochrome printers in this speed range, the Lexmark T632n features four standard print and hold functions: secure print, referred to by Lexmark as "Confidential Jobs," which allows the end user to enter a four-digit code to retrieve his/her print job at the device; repeat print, which outputs a print job and holds it at the device to be printed again at a later time; reserve print, which simply stores a print job in memory to be printed later; and verify print, also referred to as "proof print," which allows the user to print one copy of a job before releasing the remaining copies at the device.

Accommodating up to legal-size output, the T632n features competitive standard and maximum paper capacities of 600 sheets and 4,100 sheets, respectively. Lexmark also offers a number of optional paper-handling accessories for the T632n, including an envelope feeder that holds up to 85 envelopes and a 500-sheet duplex unit, in addition to extra paper drawers that hold up to 250, 500 or 2,000 sheets. On the output side, Lexmark offers the StapleSmart finisher, which staples up to 25 sheets per set, offsets to two positions and stacks up to 750 sheets unstapled or 600 sheets stapled, as well as a five-bin mailbox that holds up to 500 sheets, a 650-sheet output expander and a 2,000-sheet high-capacity output stacker. Lexmark also offers numerous interface and memory options, including a 20-GB hard disk (which enables job accounting when using MarkVision Professional), as well as its Optra Forms software, which is a printer-based batch document formatting and electronic forms printing solution. Another option, Lexmark's ImageQuick card, allows for the direct printing of PDF, TIFF, GIF, JPG and HTML files, just to mention a few.

With Lexmark's X4500 MFP option, not tested by BLI, the T632n can be transformed into a multifunctional unit with standard copy, fax and scan capabilities, including scan-to-e-mail and scan-to-network. The X4500 features a 7.5" color touch-screen control panel, scan speeds of 14 ppm in color and 23 ppm in black, an automatic document feeder that holds up to 50 sheets, and a 33.6-Kbps modem.

Connectivity

Connected to BLI's test network via its standard 10/100BaseTX Ethernet interface (a USB port is also standard), the Lexmark T632n also

continued

General Appraisal *continued*

features optional serial and 802.11b wireless interfaces. The T632n supports Windows, Novell NetWare and UNIX network operating systems, as well as IBM iSeries and AS/400 environments.

The unit comes bundled with Lexmark's Web-based print management utility, MarkVision Professional, a very flexible and powerful network management tool designed primarily for network administrators, which makes setup on the network easy and has the ability to identify all Lexmark and even non-Lexmark printers on a network (documentation on MarkVision Professional lists other printers with which the utility is compatible).

At the workstation, end users may install a client module of MarkVision Professional or access the device's Web server simply by using their Web browser. Capabilities of the powerful utility include the ability to limit access to the MarkVision Professional Web server by assigning privileges to individual users and/or groups, and to create sub-folders of the "All Devices" folder with filters attached (such as low on toner, so that any device reporting low toner will appear in that folder). MarkVision Messenger, a component of MarkVision Professional, may be configured to send e-mail alert messages based on event occurrences, such as low on toner, and to record all printing data for printers on the network and export that data to a database or spreadsheet.

MarkVision Professional also provides extensive device status and print job status monitoring capabilities, including real-time feedback when the client module is installed at the workstation and limited real-time feedback from the device's Web server when the client

module is not installed. Feedback is also available via a status window that may be accessed from either print driver. The status window provides real-time pop-up messages regarding status information and may be configured by the end user to open either whenever a print job is sent, only when an error occurs at the device, only when a warning is sent regarding the device or print job, or instead of opening, to remain minimized on the taskbar where the icon will flash until the window is opened by the user.

BLI technicians also found the T632n's PCL and PostScript print drivers to be well-laid-out and easy to use. Lexmark provides PCL 6 and PostScript 3 drivers for Windows 95, 98, NT 4.0, 2000, Me and XP operating systems, as well as the necessary PPD files for Macintosh and UNIX operating systems (including flavors of Linux). Both drivers support the automatic detection of device features, booklet printing (from Windows 2000), automatic collation, N-up printing, overlays, watermarks, a save-settings mode and print-and-hold functionality; the PostScript driver also supports mirror image and reduction/enlargement.

Pricing Analysis and Summary

The Lexmark T632n is priced lower than average for legal-size printers in its speed range (35 to 45 ppm) with similar standard features, including network connectivity, and the unit's supplies cost per page is competitive with that of tested monochrome printers in the same speed range. Combined with its outstanding performance in BLI testing, its lower-than-average price point makes the T632n an ideal and cost-effective choice for any medium to large workgroup. (Lexmark also offers a version with standard duplex and an extra paper drawer, the

continued

General Appraisal *continued*

T632dtn, as well as a version with standard duplex, an extra paper drawer and Lexmark's StapleSmart finisher, the T632dtnf). Offering perfect reliability, impressive productivity, thorough network management utilities and good economy, the Lexmark T632n is highly recommended by BLI for print volumes of up to 100,000 impressions per month.

Print Quality:

Text: Good

Line art: Good

Halftones: Good

Solids: Good

Ease of use: Good

Ease of maintenance: Good

Estimated waste: Low

Estimated downtime: Low

Misfeeds: 0

Misfeed rate: Not applicable

Total service calls: 0

Mean Impressions

Between Failures (MIBF): Not applicable

Mean Impressions

Between Service (MIBS): Not applicable

Toner yield: 29,508 impressions

FEATURES

Automatic features: Auto tray switching; auto emulation switching.

Client operating system support: Microsoft Windows 95, 98, NT 4.0, 2000, Me and XP; Macintosh OS 8.6 or later, Macintosh OS X; Red Hat Linux 7.0, 7.1, 7.2; SuSE 7.1, 7.2, 7.3.

Control codes/tracking: None.

Duplex: Optional.

Energy-save mode: Reduces power consumption from 639 watts while printing to 15 watts after 60 minutes of non-use (user-selectable from one to 240 minutes in one-minute increments). Lexmark refers to this feature as "power saver."

Fonts: 158 PostScript, 84 PCL, two PCL bitmap fonts, 39 scalable PPDS fonts, five PPDS bitmap fonts, OCR-A and OCR-B.

Interface(s): Standard 10/100BaseTX Ethernet interface and USB port.

Job management features: MarkVision Professional print management utility.

Languages: The following languages are available from the control panel: English, German, French, Italian, Japanese, Portuguese, Swedish, Finnish, Dutch, Norwegian and Netherlandish.

Memory: Standard 64 MB of RAM (expandable to 320 MB).

Network operating system support: Microsoft Windows NT 4.0 Server, 2000 Server and Advanced Server; Novell NetWare versions 3.x, 4.x, 5.x and 6.x including NDS and NDPS support; Red Hat Linux 7.0, 7.1, 7.2; SuSE 7.1, 7.2, 7.3; HP-UX 10.20 and 11.00; IBM AIX 4.2.1, 4.3.3, 5.1; SCO OpenServer 5.0.4, 5.0.5, 5.0.6; SGI IRIX 6.5.x; Sun Solaris x86 2.6, 7 and 8; (SCO) UnixWare 2.1.3, 7.1, 7.1.1; Compaq (Digital) UNIX 4.0D; Compaq Tru64 UNIX 4.0F, 5.1; IBM iSeries or IBM AS/400® V3R1 or later using OS/400 Host Print Transform; any platform supporting TCP/IP; Citrix MetaFrame (Microsoft Windows 2000 Server Terminal Services or Microsoft Windows NT 4.0 Terminal Server with Citrix MetaFrame 1.8 or XP 1.0).

Printer languages: PCL 6, PostScript 3 emulation and Personal Printer Data Stream (PPDS).

FEATURES *continued*

Resolution: 1200 x 1200 dpi, 1200 x 600 dpi (1200 Image Quality), 600 x 600 dpi and 300 x 300 dpi.

Secure print: Yes. The user selects “Confidential Print” from the “Output To” drop-down list under the “Paper” tab of the PostScript print driver and enters a four-digit PIN (personal identification number) before sending the print job to the Lexmark T632n. When using the PCL 6 driver, users select “Confidential Print” from the “Print and Hold” dialog box selected under the “Setup” tab and then enter their four-digit PIN.

Other features: Repeat print; reserve print; verify print; N-up printing (two, four, six, nine, 12 or 16 images per page); watermarks; overlays; reduction/enlargement from 10% to 400%; toner darkness settings; offset stacking (when using the optional StapleSmart finisher).

Control Panel

Type: Five hard keys (“1 Menu 2,” “Select 3,” “Return 4,” “Go 5” and “Stop 6”), which are used to view and/or change the network configuration and/or printer settings of the T632n.

Indicators/prompts: The LED lights to indicate when the printer is on-line and flashes when data is being received. A 32-character LCD (two lines of 16 characters each) allows the user to access the operation panel menus.



Lexmark T632n Control Panel

FEATURES *continued***Lexmark T632n Accessories**

250-Sheet Drawer: Web price, \$226 U.S.

500-Sheet Drawer: Web price, \$276 U.S.

2,000-Sheet Drawer (Letter): Web price, \$881 U.S.

2,000-Sheet Drawer (A4): Web price, \$881 U.S.

85-Envelope Feeder: Web price, \$276 U.S.

500-Sheet Duplex Unit: Web price, \$314 U.S.

650-Sheet Output Expander: Web price, \$226 U.S.

5-Bin Mailbox: Web price, \$440 U.S.

250-Sheet Tray: Web price, \$87 U.S.

500-Sheet Tray: Web price, \$103 U.S.

High-Capacity Output Stacker: Web price, \$566 U.S.

Vertical Kiosk Presenter: Web price, \$171 U.S.

Horizontal Kiosk Presenter: Web price, \$171 U.S.

250-Sheet Universally Adjustable Tray: Web price, \$96 U.S.

250-Sheet Universally Adjustable Tray and Drawer: Web price, \$267 U.S.

400-Sheet Universally Adjustable Tray: Web price, \$112 U.S.

400-Sheet Universally Adjustable Tray and Drawer: Web price, \$314 U.S.

StapleSmart Finisher: Web price, \$799 U.S.

Staple Cartridges: Web price, \$38.25 U.S.

802.11b Wireless Print Adapter (External): Web price, \$199 U.S.

Lexmark X4500 MFP Option: Web price, \$4,299 U.S.

ImageQuick Card: Web price, \$251 U.S.

Card For IPDS And SCS/TNE: Web price, \$565 U.S.

Bar-Code Card: Web price, \$362 U.S.

Lexmark PrintCryption Card for Lexmark T630, T632: Web price, 218 U.S.

Simplified Chinese Font Card: Web price, \$224 U.S.

Traditional Chinese Font Card: Web price, \$224 U.S.

Japanese Font Card: Web price, \$224 U.S.

Optra Forms 16-MB Flash Card: Web price, \$529 U.S.

Optra Forms 32-MB Flash Card: Web price, \$724 U.S.

Optra Forms 20-GB Hard Disk w/Adapter: Web price, \$849 U.S.

Optra Forms 4.3c Software: Web price, \$462 U.S.

Optra Forms Director V1.0: Web price, \$789 U.S.

Optra Forms Manager: Web price, \$173.75 U.S.

Optra Forms 2-Key Hardware Security Option: Web price, \$396.90 U.S.

Optra Forms 3-Key Hardware Security Option: Web price, \$478.80 U.S.

Serial 50' Cable: Web price, \$36.54 U.S.

Coax/Twinax Adapter For SCS: Web price, \$665 U.S.

Parallel 1284-B Interface Card: Web price, \$87 U.S.

RS-232C Serial Interface Card: Web price, \$87 U.S.

USB 2-Meter Cable: Web price, \$18.90 U.S.

Parallel 10" High-Speed Bidirectional Cable: Web price, \$24.99 U.S.

External Serial Adapter: Web price, \$102.60 U.S.

Parallel 20" High-Speed Bidirectional Cable: Web price, \$42.84 U.S.

20-GB Hard Disk with Adapter: Web price, \$535 U.S.

8-MB RAM: Web price, \$87 U.S.

16-MB RAM: Web price, \$150 U.S.

32-MB RAM: Web price, \$289 U.S.

64-MB RAM: Web price, \$549 U.S.

128-MB RAM: Web price, \$879 U.S.

16-MB Flash Card: Web price, \$217 U.S.

32-MB Flash Card: Web price, \$411 U.S.

T63x Printer Base: Web price, \$489 U.S.

X4500 Scanner Shelf: Web price, \$119 U.S.

T63x Operator Panel Cover: Web price, \$32 U.S.

Lexmark MFP Adjustable Stand: Web price, \$639 U.S.

T Scanner Shelf: Web price, \$119 U.S.

Lexmark T Printer Stand w/Cabinet: Web price, \$377 U.S.

Lexmark T Low Profile Printer Stand: Web price, \$369 U.S.

Lexmark T Printer Stand: Web price, \$352 U.S.

Lexmark Scanner Stand w/Cabinet: Web price, \$449 U.S.

TEST RESULTS AND OBSERVATIONS

Test equipment: BLI's dedicated test network, consisting of Windows NT 4.0 servers and Windows 98, 2000 and XP workstations, 10/100BaseTX network switches and CAT5 cabling.

Reliability

PMs/Malfunctions	Service Required	Meter Count (Impressions)	Impressions Between Service
Meter count (beginning of test)		0	
End of test period		200,000	
Total misfeeds/misfeed rate	0 / Not applicable		
Service calls	0		
PMs	*		
Total service calls (including PMs)	0		
M.I.B.F. ¹	Not applicable		
M.I.B.S. ²	Not applicable		
* Lexmark does not schedule PMs.			
¹ <i>Mean Impressions Between Failures (To obtain this number, BLI divides the total number of impressions produced during the test period by the number of service calls required. In actuality, it reflects the average number of impressions produced without a malfunction.)</i>			
² <i>Mean Impressions Between Service (To obtain this number, BLI divides the total number of impressions produced during the test period by the number of service calls, including preventive maintenance calls, required. In actuality, it reflects the average number of impressions produced without a service call.)</i>			

Maintenance

Lexmark does not schedule PMs; instead, the user performs any preventive maintenance required when replacing the imaging cartridge. The user will also need to replace the maintenance kit (transfer roller, charge roller, pick rollers) at 300,000 pages.

Guarantee/Warranty: The Lexmark T632n is backed by a one-year LexExpress program (Lexmark's overnight exchange program).

Service pricing: Lexmark offers the following extended warranties: LexExpress one-year extended warranty (\$179 U.S.); LexOnSite Exchange one-year extended warranty (\$259 U.S.); LexOnSite Repair one-year extended warranty (\$249 U.S.); LexExpress two-year extended warranty (\$299 U.S.); LexOnSite Repair two-year extended warranty (\$429 U.S.); LexOnSite Repair two-year extended warranty (\$429 U.S.); LexExpress three-year extended warranty (\$459 U.S.); LexOnSite Exchange three-year extended warranty

(\$649 U.S.); LexOnSite Repair three-year extended warranty (\$649 U.S.); LexOnSite Exchange first-year upgrade (\$119 U.S.); LexOnSite Repair first-year upgrade (\$69 U.S.).

User-Replaceable Consumables

Extra high-yield return-program print cartridge: Web price, \$355 U.S. Manufacturer's rated yield, 32,000 pages at 5% coverage.

High-yield return-program print cartridge: Web price, \$330 U.S. Manufacturer's rated yield, 21,000 pages at 5% coverage.

Return-program print cartridge: Web price, \$99 U.S. Manufacturer's rated yield, 5,000 pages at 5% coverage

Extra high-yield print cartridge: Web price, \$405 U.S. Manufacturer's rated yield, 32,000 pages at 5% coverage.

High-yield print cartridge: Web price, \$380 U.S. Manufacturer's rated yield, 21,000 pages at 5% coverage.

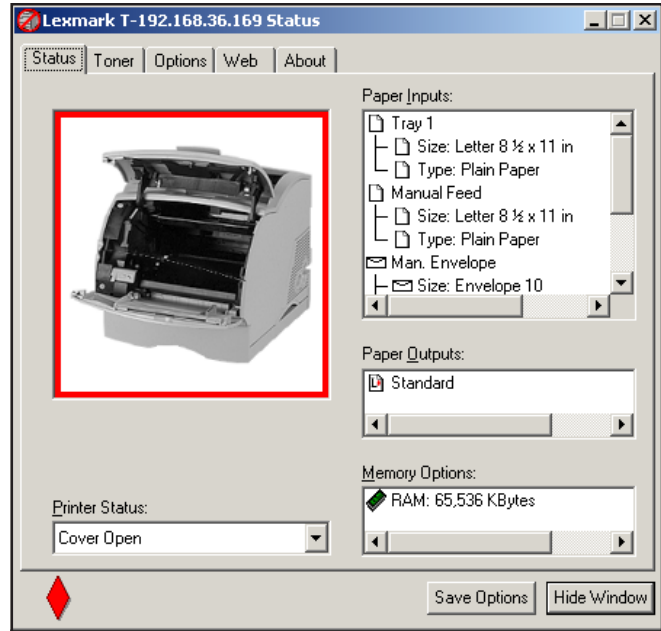
TEST RESULTS AND OBSERVATIONS *continued*

Print cartridge: Web price, \$149 U.S. Manufacturer’s rated yield, 5,000 pages at 5% coverage.

Maintenance kit: Suggested retail price, \$296.30 U.S. Manufacturer’s rated yield 300,000 pages.

Ease of replacing imaging cartridge: Good. Procedures for replacing the imaging cartridge were clean and straight forward.

Ease of installing maintenance kit: Not applicable. The maintenance kit did not require replacement during the test period.



“Status” Window

the printer properties to configure the printer for use on the Lexmark printer port.

Control panel status messages/job access: Job status information is available at the control panel. Once the job has started printing, anyone may cancel the print job simply by pressing the “Cancel” key unless the control panel has been locked through the MarkVision Professional network management utility.

Feedback to PC workstations: Good. A “Status” window is accessible through either the PCL or PostScript print driver. Under the “Features” tab, the user needs to check the “Enable” check box in the “Status Window” section when using the PostScript driver. When using the PCL driver, the user selects the “Setup” tab and clicks on the “Print and Hold” button to access the “Status” window. Both drivers offer four selections to configure the “Status” window: “Always display” makes a minimized status window pop up whenever a print job is sent; “Display on Errors” makes the status window pop up only when a device or print job error occurs; “Display on Warning” makes the status window pop up only when a warning is sent regarding device and/or print job status; and “Run Minimized” prevents the status window from popping up by keeping it minimized on the taskbar, where the icon will flash until the window is opened by the user.

TONER YIELD/ SUPPLIES COST PER PAGE

Toner Yield (Impressions) 29,508	Impressions Per Gram 38.28
Toner Cost Per Page 1.203¢ U.S.	Supplies Cost Per Page* 1.302¢ U.S.*

Net weight: 770.8 grams

¹ Toner cost per page is based on BLI’s tested toner yield of Lexmark’s extra high-yield print cartridge using the BLI test original with 5% page coverage.

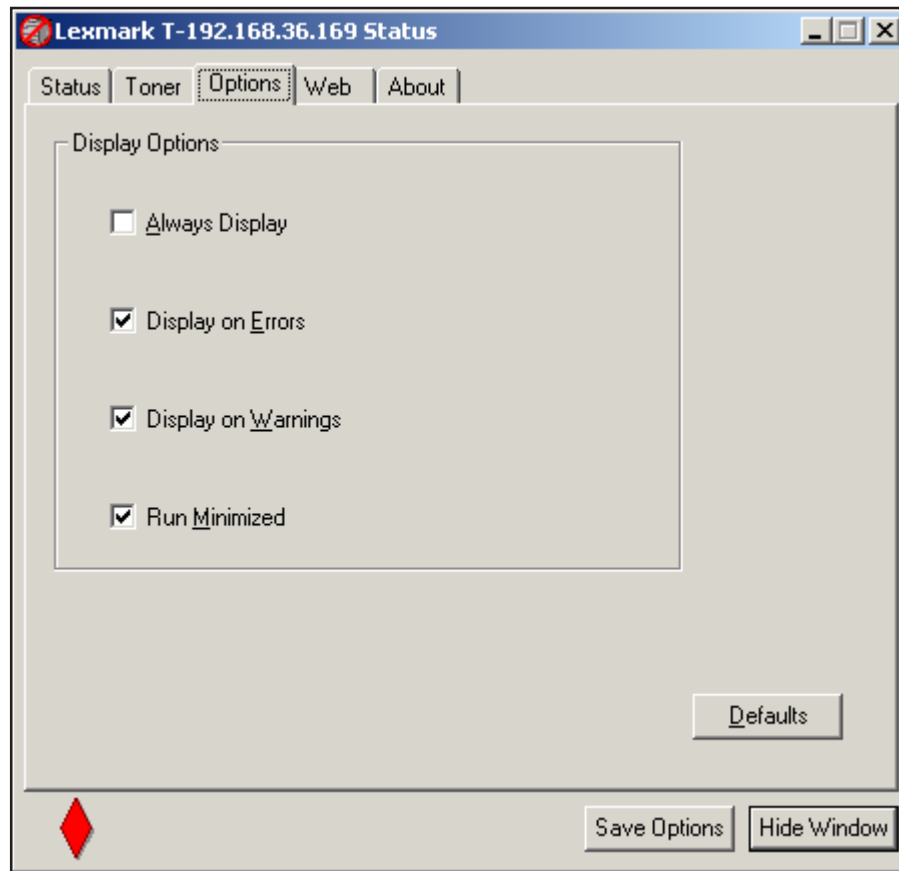
² Supplies cost per page is based on Lexmark’s Web pricing, BLI’s tested toner yield and Lexmark’s rated yield for the maintenance kit.

Ease of Operation

Documentation: Good. The Lexmark T632n is bundled with the “Lexmark T630, T632 Setup Guide,” two CD-ROMs and a “Quick Reference for the Lexmark T630, T632.” One CD-ROM contained the “User’s Reference Guide for the T630, T632” in PDF format, while the other CD-ROM contained the print drivers and MarkVision Professional network management utility.

Ease of use: Good. PCL and PostScript print drivers are loaded during the installation process. When performing a custom installation routine, users select “Printer Drivers,” “BiDi Support for Drivers” and “Network Support” when the printer is being configured on a network. By default, the print drivers are configured for LPT1; the user must access

TEST RESULTS AND OBSERVATIONS *continued*

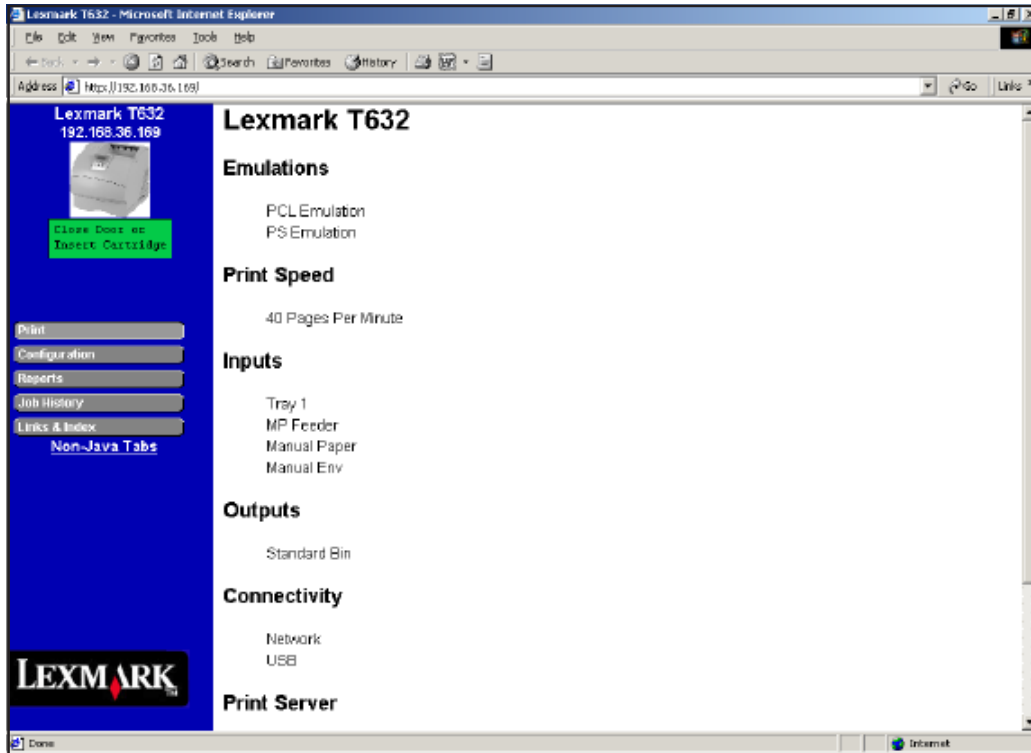


“Status” Window “Options” Tab

With MarkVision Professional, Lexmark’s Web-based network management utility (see “Networking and Connectivity”), the administrator may create e-mail alert messages for specific events to be sent to designated individuals. It should be noted that users must have MarkVision Professional Client installed at their workstations in order to access detailed status information. Regardless of whether or not MarkVision

Professional Client is installed at the workstation, users may access information through the T632n’s Web page, although the Web page offers only limited real-time feedback through a Java applet (loaded when the Web page is launched). Real-time feedback is limited to the error messages that appear in the T632n’s LCD display.

TEST RESULTS AND OBSERVATIONS *continued*



Lexmark T632n's Web Page

Device status: Yes. Information on device status is available when using the MarkVision Professional network management utility (when the administrator has given privileges to the user) by accessing the T632n's print server via a Web browser, or by selecting the "Status" window check box in the print driver. See "Feedback to PC workstations."

Print job status: Yes. Limited information regarding print job status is available through MarkVision Professional's "Job Menu," at the control panel (viewed through the print driver "Status" window), or from the T632n's Web page.

Paper status: Yes. Information on paper size, but not the amount of remaining paper, is available using the MarkVision Professional utility.

Error messages: In addition to pop-up messages, error messages displayed on the LCD of the Lexmark T632n may be viewed at the workstation through MarkVision Professional if the administrator has given privileges to users to access the remote "Operator Panel" or "LCD Display."

Ease of removing misfeeds: Good. Front-loading design with

three access points for removing misfeeds. An error message appears at the control panel to indicate "2xx Paper Jam;" users must refer to the "User's Reference Guide" or "Quick Reference Card" to determine the location of the paper jam.

Ease of loading paper: Good. Loading paper into the drawers is easy; the drawers do not have spring-loaded ramps or corner separators to hinder access when loading paper.

Auto paper-size detection: Yes.

Ease of adjusting paper drawers: Good. The paper drawers have two separate slide guides, one for length and one for width, to accommodate paper ranging in size from 5.5" x 8.27" to 8.5" x 14" with weights ranging from 16- to 36-lb. bond, up to 110-lb. index, 125-lb. tag or 80-lb. cover. The paper size selected from the print driver will automatically be selected from the on-line paper sources. If the size does not reside in the printer, the control panel LCD will inform the user to load the requested paper size.

Operator error: None.

TEST RESULTS AND OBSERVATIONS *continued*

Throughput Capabilities/Materials

Standard paper supply: One 500-sheet paper drawer and a 100-sheet multipurpose tray (bypass). The 500-sheet paper drawer is user-adjustable for sheets ranging in size from 5.5" x 8.27" to 8.5" x 14" with weights ranging from 16- to 36-lb. bond, up to 110-lb. index, 125-lb. tag or 80-lb cover. The multipurpose tray is user-adjustable for sheets ranging in size from 2.75" x 5" to 8-1/2" x 14" and in weight from 16- to 36-lb. bond, up to 90-lb. index, 100-lb. tag or 65-lb. cover, as well as envelopes (sizes 7-3/4, 9, 10, DL, C5, B5).

Maximum number of available on-line paper sources with options: Six.

Maximum on-line paper capacity with options: 4,100 sheets.

Paper output: The standard output tray holds up to 500 sheets and outputs print jobs facedown in the correct order.

Ability to process self-adhesive address labels: Avery 5351 labels performed satisfactorily in testing.

Ability to process transparencies: 3M PP2500 transparencies performed satisfactorily in testing.

Productivity

Warm-up: About 14 seconds from a cold start.

BLI'S TESTED RASTER TIMES / PRINT SPEEDS

PostScript 3

Windows 2000	Word	PageMaker	Photoshop	Acrobat	Photoshop
File Type	Text/Graphic	Graphic/Text	Graphic	Graphic/Text	Graphic
File Extension	DOC	PM6	TIF	PDF	JPG
Pre-Raster File Size	114 KB	116 KB	20 MB	426 KB	248 KB
Post-Raster File Size	103 KB	71.8 KB	41.2 MB	785 KB	2.17 MB
First-Page Time (Seconds)	10.70	10.38	57.06	10.42	10.15
Speed Excluding First Page	40.24 ppm	40.16 ppm	40.20 ppm	39.53 ppm	40.21 ppm
Speed Including First Page	37.36 ppm	37.38 ppm	27.43 ppm	36.38 ppm	37.49 ppm

Manufacturer's rated speed: 40 ppm.

All files are printed in a quantity equal to twice the manufacturer's rated speed for the device. The Lexmark T632n's print speeds were tested at 600 x 600 dpi using the PostScript 3 print driver.

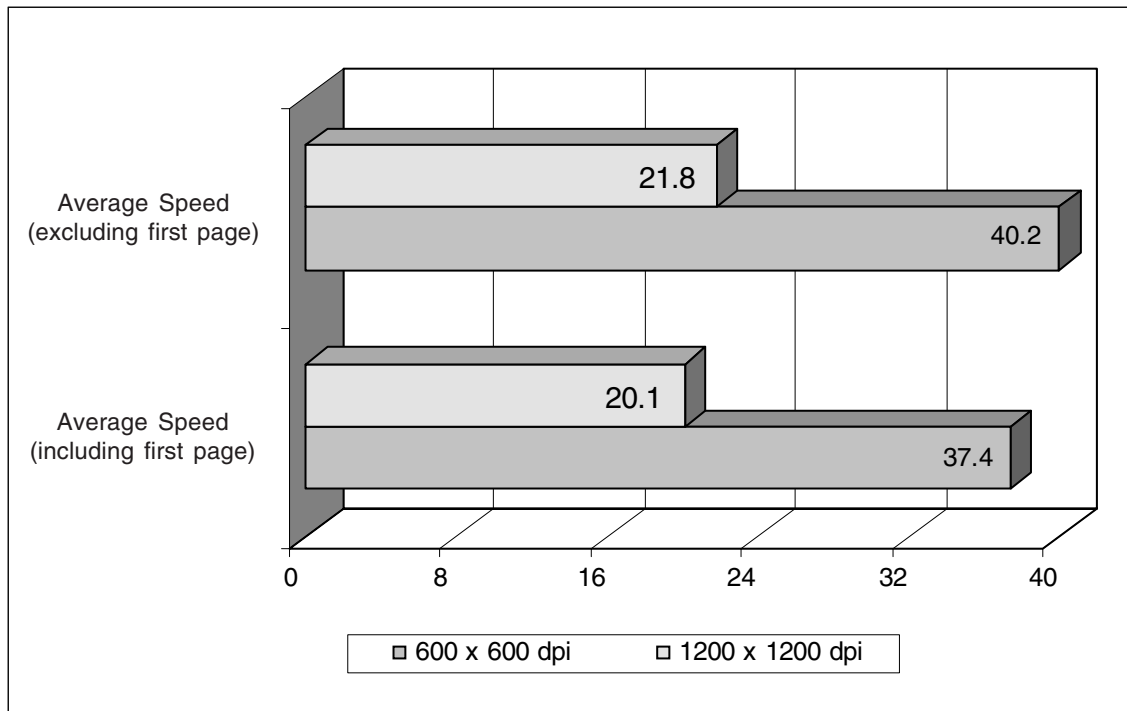
First-page time indicates the time it took to RIP, image and deliver the first page of the test document set to the output tray.

Speed excluding first-page time indicates the time for printing the entire set of test originals, excluding first-page RIP and print times.

Speed including first-page time indicates the time for printing the entire set of test originals, including first-page RIP and print times.

TEST RESULTS AND OBSERVATIONS *continued*

BLI'S TESTED PRINT SPEEDS



Print speed is tested using BLI's test original with 6% page coverage. The test pages are printed in a quantity equal to double the vendor's rated print speed for the device in each mode tested (e.g., if the vendor's rated print speed is 20 ppm, 40 pages are printed). The Lexmark T632n's print speeds were tested at 600 x 600 dpi and 1200 x 1200 dpi using the PostScript 3 print driver.

Print Quality

Text: Good

Line art: Good

Halftones: Good

Solids: Good

Comments: Output produced by the Lexmark T632n's PostScript driver at 1200 x 1200 dpi was good overall. Characters were clean, circles were smooth, thin lines on dark backgrounds were clearly visible, and horizontal and vertical lines displayed no stair-stepping. It should be noted that at 600 x 600 dpi, fill of fonts at 8-point and below was not consistent with characters and especially serifs, which started breaking up. Dot-fill percentages were also slightly

lower than would have been expected at 600 x 600 dpi, visible from the 4% to 81% dot-fill range, with transitions that were easily discernable.

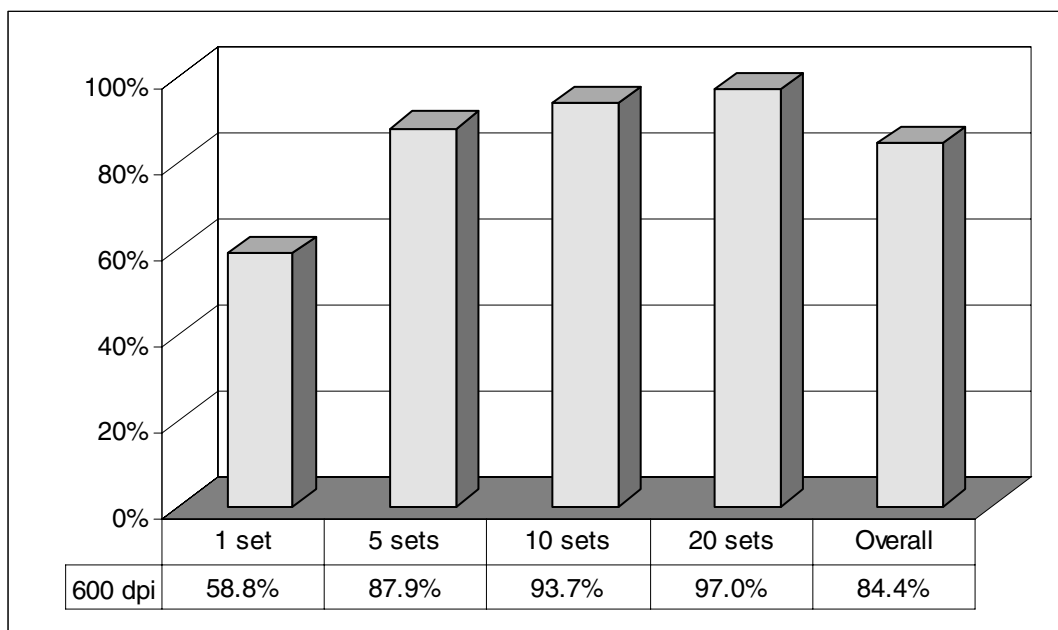
Density of solid black printed image (based on four readings corresponding to four different locations on the original): Range, 1.33 to 1.43 (on a scale of 0 to 2.5, with 2.5 being as dark as would be possible under most circumstances).

Density range for monochrome laser/LED printers tested to date: 1.00 to 1.50.

Density range for color laser/LED printers tested to date: 1.20 to 1.74.

TEST RESULTS AND OBSERVATIONS *continued*

EFFICIENCY



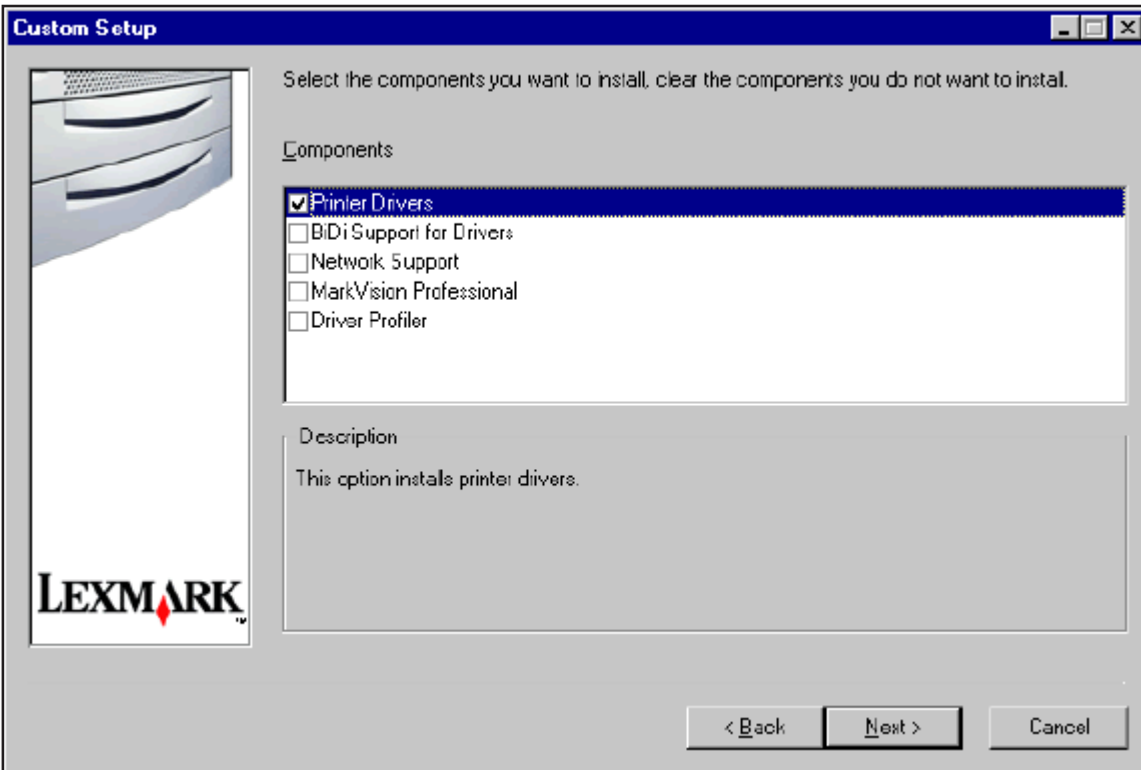
BLI obtains the overall efficiency percentage by averaging the efficiency ratings (derived by dividing the tested speed of the device by the rated speed and then multiplying by 100) for each run length. Jobs are based on a 10-page document printed at 600 x 600 dpi using the PostScript 3 driver.

Networking and Connectivity

The Lexmark T632n connects to networks via a standard 10/100BaseTX Ethernet interface and ships with Lexmark's network print management utility, MarkVision Professional, which is a Web-enabled device management utility designed primarily for network administrators. MarkVision Professional is a very flexible and powerful network management tool, which can identify Lexmark and non-Lexmark printers on a network; documentation on MarkVision Professional lists other printers with which the utility is compatible. Like other Lexmark printers, the T632n is designed to be alert-based, allowing the printer to report errors to the management utility when they occur so that users do not have to proactively request status information (this should help reduce network traffic).

MarkVision Professional software is a client-server based management tool with two separate modules that need to be loaded, the server module and the client module. Both modules can be loaded on one workstation or the user may require only the client software (there must be at least one server on the network on which MarkVision Professional is running). The server module of the software is actually a Web server that is installed on the workstation; the client piece of the software is a Java applet that provides the user's interface. Users may also use the Web browser as long as they have a plug-in to support Sun's Java Runtime Environment (JRE). Running the MarkVision Professional client software gives users faster access to the MarkVision Professional Web server but requires users to install an additional applica-

TEST RESULTS AND OBSERVATIONS *continued*



Custom Setup Window (Using Lexmark's Installation Routine)

tion software on their workstations. If the user accesses the MarkVision Professional Web server using a Web browser, the access will be slower, but no additional software—except for the Java plug-in—is required. (The Java plug-in can be downloaded from the MarkVision Professional Web server when first attaching to the server. In either case the user will have access to exactly the same information.)

When the administrator initially loads MarkVision Professional, he or she needs to identify and attach to the MarkVision server; the name of the server is the workstation's NetBEUI or Host name. MarkVision Professional will then search the network and identify any Lexmark and/or MarkVision-compatible printers found and place them in the "All Devices" folder.

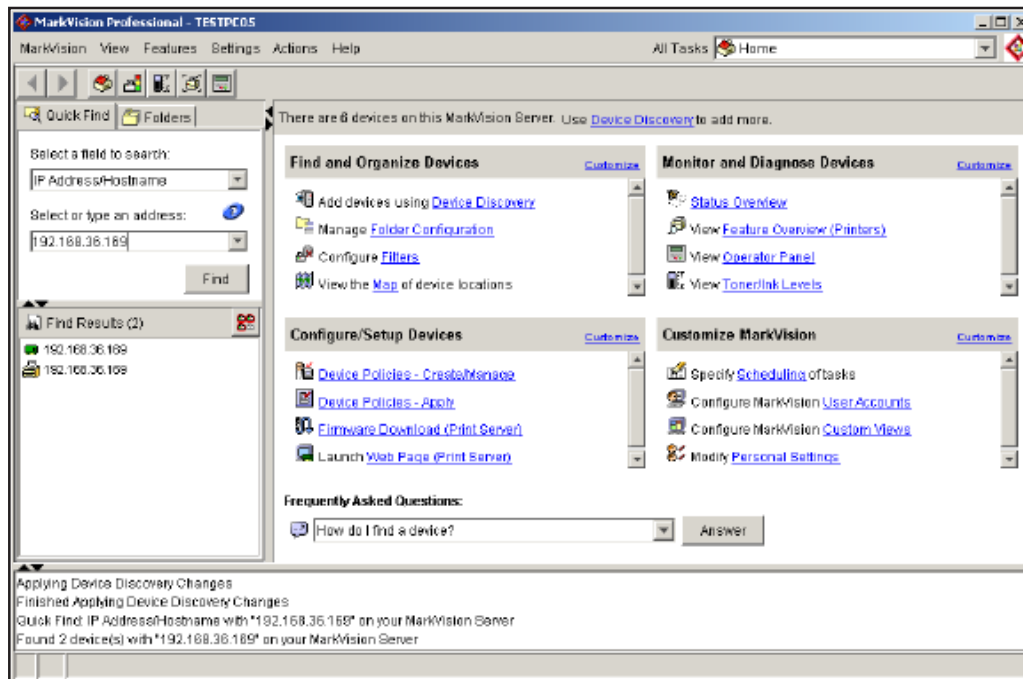
Every user has full rights to any of the settings available in the MarkVision Professional software until accounts are created. The administrator may create user or group accounts and assign user privileges. Once the administrator has cre-

ated accounts, anyone accessing the MarkVision utility will be required to log on to the Web server.

Initially, the administrator or user selects the MarkVision server name and clicks on the "Connect" button. Once a connection is made with the MarkVision server, the administrator or user must enter an account name and password and click on "Login" before MarkVision Professional will launch. If the Web browser is being used, the user accessing the MarkVision server must type in the URL address (<http://servername:9180/markvision>) of the MarkVision server to access the Web server.

The user must click on the MarkVision Web Client to start and/or download the Java applet. A screen appears asking if the user wants to start the Java applet. Once the applet is running, the user is required to log on to the Web server; however, it should be noted that users do not have to connect to the server since they were already connected after typing in the URL.

TEST RESULTS AND OBSERVATIONS *continued*



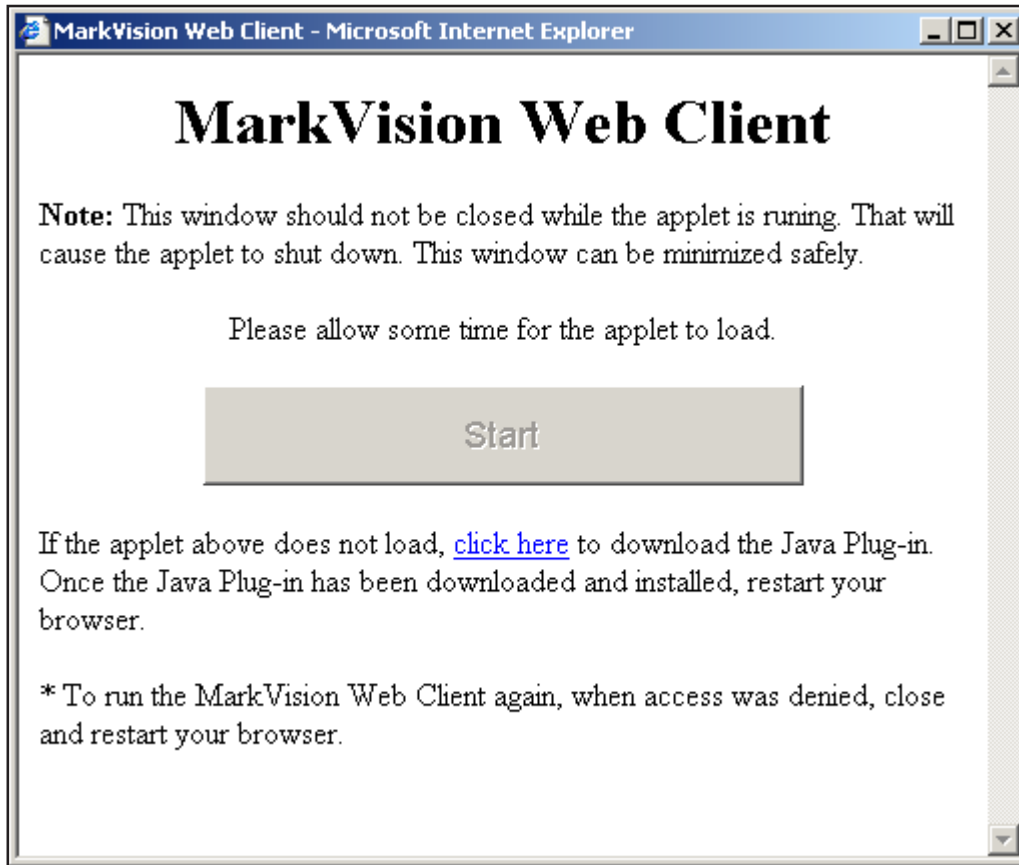
MarkVision Professional Home Page



MarkVision Professional Login

Copyright 2003. **WARNING:** This material is copyrighted by Buyers Laboratory Inc. and is the sole property of Buyers Laboratory. Duplication of this proprietary report or excerpts from this report, in any manner, whether printed or electronic (including, but not limited to, copying, faxing, scanning or use on a fax-back system), is illegal and strictly forbidden without written permission from Buyers Laboratory. Violators will be prosecuted to the fullest extent of the law. To purchase reprints of any BLI reports or articles, contact BLI at (201) 488-0404. Buyers Laboratory Inc., 20 Railroad Avenue, Hackensack, NJ 07601. Or visit our Web site at www.buyerslab.com.

TEST RESULTS AND OBSERVATIONS *continued*

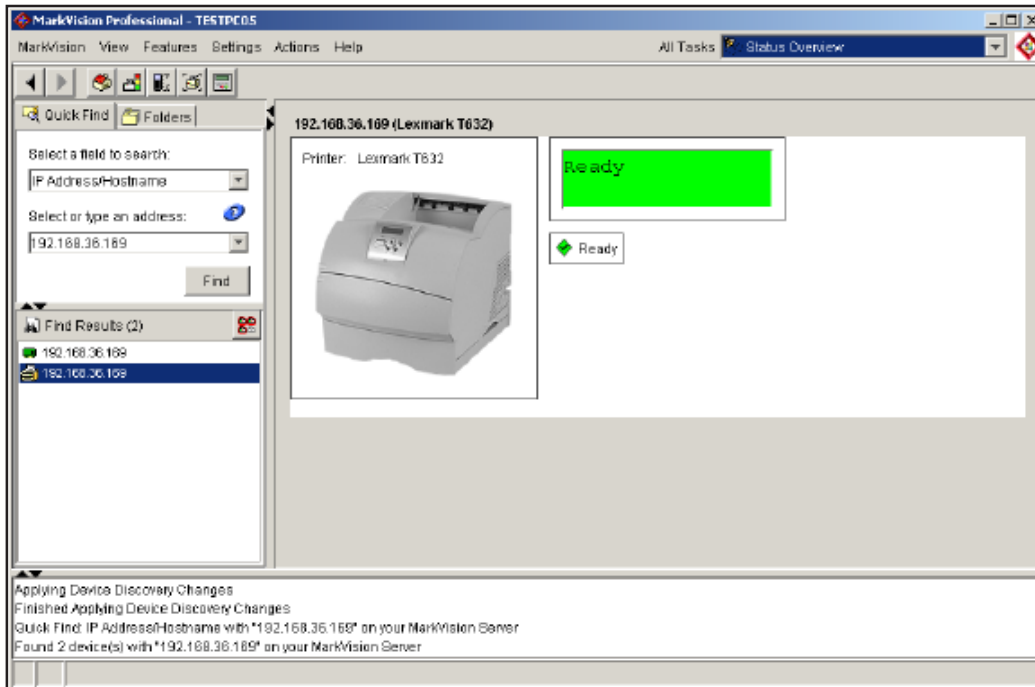


Java Applet Startup Screen

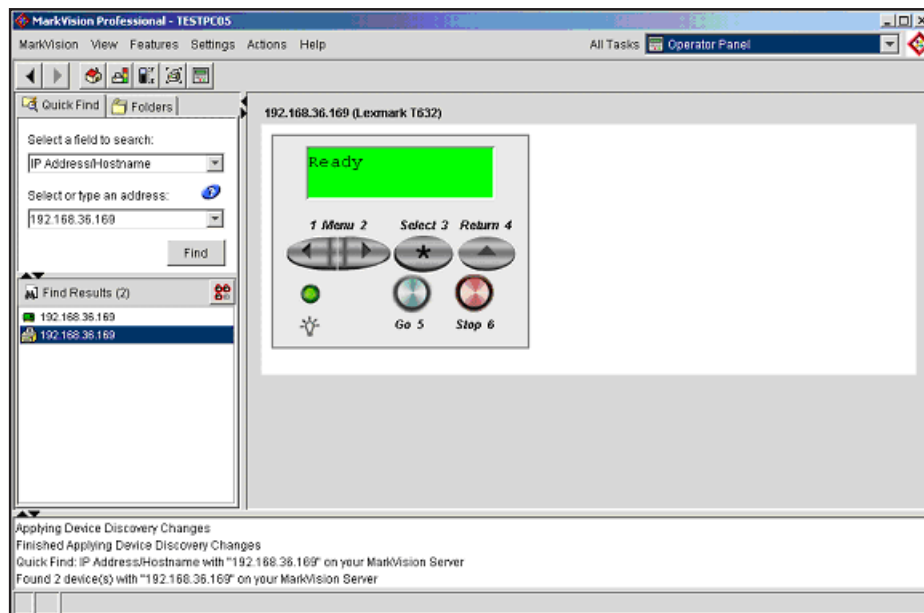
Once the user has logged in to the MarkVision server, the initial menu accessed is based on the privileges given to that user's account or group account. The administrator may create sub-folders of the "All Devices" folder and group printers in different folders. A nice feature of the folders is that the administrator may attach filters to determine which printers are shown in the folder. An example of using filters with a folder would be for the administrator to create a folder with the low-on-toner filter. The only printers that would appear in the folder would be printers that have reported the event (low on toner). Printers would be added or removed from this

folder automatically based on the event status of "low on toner." Other event conditions may also be used. The administrator may proactively check the status of any printer by first selecting the printer and using the "All Tasks" drop-down list at the top of the MarkVision dialog box. Users and/or administrators may choose from a wide array of items to check; for example, they may choose "Status Overview" to find out the current status of the T632n printer, or they may access the T632n's control panel by selecting "Operator Panel."

TEST RESULTS AND OBSERVATIONS *continued*



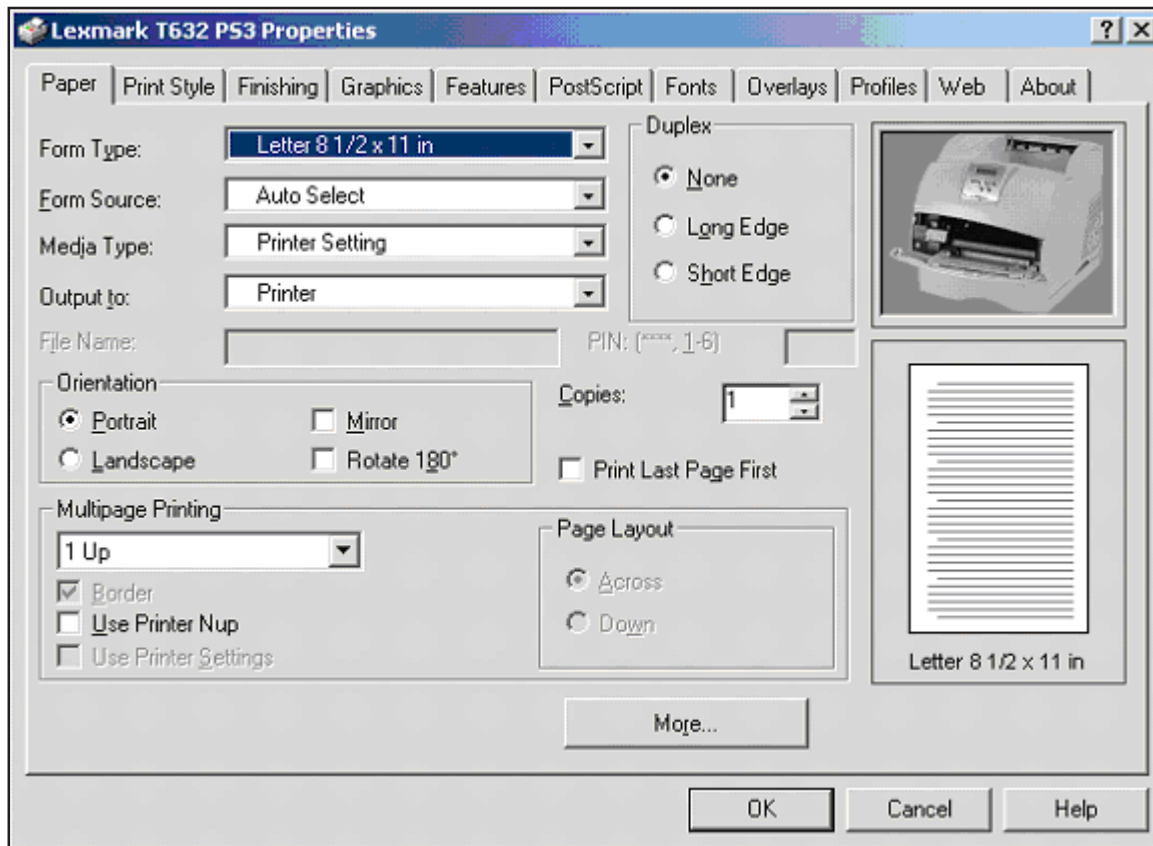
MarkVision Professional Status Overview Window



MarkVision Professional Operator Panel Window

Copyright 2003. **WARNING:** This material is copyrighted by Buyers Laboratory Inc. and is the sole property of Buyers Laboratory. Duplication of this proprietary report or excerpts from this report, in any manner, whether printed or electronic (including, but not limited to, copying, faxing, scanning or use on a fax-back system), is illegal and strictly forbidden without written permission from Buyers Laboratory. Violators will be prosecuted to the fullest extent of the law. To purchase reprints of any BLI reports or articles, contact BLI at (201) 488-0404. Buyers Laboratory Inc., 20 Railroad Avenue, Hackensack, NJ 07601. Or visit our Web site at www.buyerslab.com.

TEST RESULTS AND OBSERVATIONS *continued*



Windows 2000 PostScript Print Driver

The MarkVision server software also includes the MarkVision Messenger program, which allows the MarkVision server to run another application or send an e-mail message based on an event occurrence of a printer or group of printers. MarkVision Professional also has the ability to take an inventory of all printers on the network and record the data (the data may be customized by using filters), as well as export the data to a database or spreadsheet. The feature of exporting data may also be used in conjunction with MarkVision Professional's job accounting feature, which requires the installation of the optional hard disk.

Applications compatibility (units are tested for compatibility with Microsoft Word 2000, Microsoft PowerPoint 2000, Adobe PageMaker 7.0, Adobe Photoshop 7.0 and Adobe Acrobat

5.0 using 25 application test files, which contain graphics, halftone images, tables, etc., enabling BLI technicians to evaluate memory usage, file processing, font-rendering and grayscale capabilities): Good. The Lexmark T632n's print drivers were found to be fully compatible with all five Windows programs used in testing, with no problems encountered.

Print drivers: The Lexmark T632n ships with two drivers, PCL 6 and PostScript 3, for Windows 95, 98, NT 4.0, 2000, Me and XP operating systems. The Windows 98 SE and Windows 2000 drivers tested were well-laid-out and easy to use. There was a slight layout difference between the PCL and PostScript drivers, which is not uncommon. The auto-install feature makes the setup and installation of the Windows drivers easy.

TEST RESULTS AND OBSERVATIONS *continued*

LEXMARK T632n PRINT DRIVER FEATURES

Features	Windows 98 SE PCL 6	Windows 98 SE PostScript 3	Windows 2000 PCL 6	Windows 2000 PostScript 3
Auto Feature/Device Detection	Yes	Yes	Yes	Yes
Booklet Printing	No	No	Yes	Yes
Collate Sets	Yes	Yes	Yes	Yes
Max Paper Sources Per Job	2	2	2	2
Mirror Image	No	Yes	No	Yes
N-up Printing	2 to 16	2 to 16	2 to 16	2 to 16
Overlay	Yes	Yes	Yes	Yes
Paper Gauge	No	No	No	No
Print and Hold	Yes	Yes	Yes	Yes
Proof Print	Yes	Yes	Yes	Yes
Quantity Selection	Up to 9,999	Up to 9,999	Up to 9,999	Up to 9,999
Reduction/Enlargement	No	10% to 400%	No	10% to 400%
Resolution Modes (dpi)	300 x 300 600 x 600 1200 x 1200 1200IQ	300 x 300 600 x 600 1200 x 1200 1200IQ	300 x 300 600 x 600 1200 x 1200 1200IQ	300 x 300 600 x 600 1200 x 1200 1200IQ
Save Settings	Yes	Yes	Yes	Yes
Secure Print	Yes	Yes	Yes	Yes
Watermarks/Custom Watermarks	No/Yes	No/Yes ¹	No/Yes	No/Yes ¹

¹ In PostScript, watermarks are referred to as "Simple Text."

RIP once/print many: Yes. BLI technicians observed no difference in file size when collate was selected from the print driver or Windows print dialog box from within an application on the Windows 98 SE platform. When printing from the Windows 2000 platform, BLI technicians observed no difference in file size when collate was selected from the Windows print dialog box from within an application; when

collate was selected from within the print drivers, however, output was not collated.

Job log/accounting: Yes (when using the MarkVision Professional network management utility and the optional hard drive has been installed).

PERFORMANCE OF TESTED SPECIAL FEATURES

Multipurpose Tray

Satisfactory. The 100-sheet multipurpose tray accommodates sheets ranging in size from 2.75" x 5" to 8-1/2" x 14" and in weight from 16- to 36-lb. bond, up to 65-lb. cover, 90-lb. index or 100-lb. tag, in addition to envelopes (sizes 7¾, 9, 10, DL, C5, B5). The user must select the multipurpose tray as the paper source from the print driver and then wait for the print job to be spooled and RIPped, after which "Load MP Feeder [TYPE]" will appear in the display panel. The user then inserts paper and presses the "Go" button on the front panel. If paper is already loaded in the multipurpose tray, the print job will print automatically without any user intervention.

ENVIRONMENTAL SPECIFICATIONS

Electrical system: 110–127 V, 50/60 Hz, 6.5 amps. The unit tested had a three-wire cord (grounded), 8' in length, and carried UL approval for the United States and Canada.

Energy Star compliance: Lexmark states that the T632n meets Energy Star requirements.

Paper fault: None. (Georgia-Pacific Spectrum Xerographic Bond and Georgia-Pacific GeoCycle recycled paper containing 30% post-consumer fiber were used in this test unit.)

PHYSICAL SPECIFICATIONS

DIMENSIONS AND WEIGHTS				
Printer	Height	Width	Depth	Weight
Lexmark T632	16.0"	17.2"	20.2"	41.5 lbs.

(This report has been reprinted with the written permission of Buyers Laboratory Inc.)