

Lexmark develops legacy-compatible solution for printing IRP commercial truck registrations with PDF417 stacked linear barcodes.

## Lexmark develops custom solution for North Carolina Department of Transportation

### The Organization

The North Carolina Department of Transportation (NCDOT) has more than 14,000 employees, providing high-quality transportation, including highways, rail, aviation, ferries, bicycle and pedestrian facilities, and public transit. NCDOT maintains more miles of highway than any other state, recently surpassing Texas, and operates under an annual budget of nearly \$4 billion. NCDOT's Division of Motor Vehicles issues vehicle and driver registrations and enforces motor vehicle laws.

### The Challenge

All commercial truckers carry International Registration Plan (IRP) paperwork. IRP is a registration reciprocity agreement that the 48 contiguous states and all 10 Canadian provinces use to determine payment of apportioned license fees based on the miles driven in each jurisdiction. Drivers continually log their mileage and file this information at renewal time for fee determination.

IRP registrants pay fees in their home jurisdiction and receive IRP registrations, apportioned license plates and "cab card" paperwork. Cab cards include a printed PDF417 stacked linear barcode symbol containing information about the vehicle, driver, and trucking company.

When a commercial vehicle stops at a weigh station in North Carolina, officials scan the PDF417 barcode printed on the cab card. A network transaction returns information about where the vehicle is registered, if taxes and fees have been paid, and whether any outstanding fines exist.

Years ago, NCDOT installed networked monochrome laser printers at selected license plate agencies and began printing IRP registrations and cab cards. To construct and print the PDF417 barcode containing mainframe-based variable information on each agency, these printers used the proprietary PRESCRIBE® command and page description language.

North Carolina participates in the federal Performance and Registration Information Systems Management (PRISM) program. Part of the guidelines for PRISM includes a requirement to print a PDF417 barcode on

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cab cards. NCDOT encountered problems creating the PDF417 barcode using the PRESCRIBE language. NCDOT submitted an Invitation for Bid stipulating that the printer vendor must be able to merge mainframe data with forms templates, printing existing forms based on PRESCRIBE language commands along with the PDF417 barcode.

Lexmark was selected as the best vendor to meet the requirements set forth in NCDOT's request for proposal.

### The Solution

Following a successful demonstration period, NCDOT purchased 225 Lexmark T-series monochrome laser printers, each specially equipped with a Lexmark PRESCRIBE emulation module. This plug-in option enables



the networked Lexmark devices to interpret and print PRESCRIBE data streams. Initially, this option did not support the PDF417 barcode, but in response to NCDOT's unique requirement, Lexmark engineers undertook a custom development project that added full support for PDF417 into the emulation module.

To partially offset the cost of purchasing and installing the printers, NCDOT obtained a grant under the PRISM program. With a mission to reduce commercial vehicle accidents, PRISM leverages states' IRP registration processes and data tracking to monitor vehicles and improve motor carrier safety.

### The Results

In just two months, NCDOT implemented the custom Lexmark solution, installing all 225 printers at the license plate agencies where cab cards are issued. Fully deployed without interruption to its existing infrastructure and in production for several months, this specialized solution developed for NCDOT is running without fail. For agents issuing cab cards, the change was nearly transparent. Only a few minutes of training were needed, mostly to familiarize agents with the printer's controls.

The new devices use less electricity and pump out page after high-quality page of output reliably. Lexmark Extra High Yield toner cartridges, rated for 36,000 pages, offer more than five times the capacity of a 7,000-page standard cartridge, and greatly reducing the need for field

employees to perform maintenance. Extra high-yield cartridges are also more economical, reduce supplies ordering, and cut recycling of empty cartridges by 80 percent.

With more than 15 million trucks and 3.5 million drivers transporting an estimated \$966 billion worth of goods annually in the U.S. and Canada, record keeping is critical to ensuring safety. For the North Carolina Department of Transportation, generating IRP registrations had become a job too important to entrust to a fleet of aging printers. By turning to Lexmark, the agency has a fully modern, reliable, and cost-effective solution that is now ready for implementation in other jurisdictions nationwide.



<sup>1</sup> Declared page yield values are in accordance with ISO/IEC 19752. PRESCRIBE is a registered trademark of Kyocera Corp.

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