

LEXMARK PRINTER FIRMWARE AND UPDATES - APRIL 2015

By Joe Cachia and the Technical Staff at UniNet

This is the sixth in our series of newsletters on printer firmware and updates.

In previous editions, we noted that our industry continues to experience “OEM Firmware Updates” and the (at times) disastrous results on replacement chip functionality. Previously, we covered HP, Samsung, Okidata, Lexmark and Xerox firmware; this edition will again review Lexmark.

For those just now joining this series, we will start with a brief overview. We noted in prior articles that within the past 6 to 9 months, most OEMs had released firmware updates (in some cases multiple updates) for many of the newer machines. Check the UniNet website for past issues to see details.

Only a small portion of the firmware actually deals with the communication between printer and chip. The basic function of the chip is to present cartridge (on which the chip is mounted) information to the printer, and if correct, printing is allowed. This includes information such as:

- The correct cartridge info (part #)
- Correct region
- Cartridge new or used
- If used, the page-count and page coverage
- Toner remaining in the cartridge (based on information stored by the printer)

“Chips” on toner cartridges have evolved significantly since the first versions that appeared on Xerox cartridges in the late 1990s. Industry veterans will recall the first error messages for “CRUM” (Consumer Replaceable Unit Monitor, Xerox-speak for cartridge chip). These simple chips were readily programmed and replaced by the aftermarket. When introduced, the machines used the chips to store the usage history on an installed cartridge. Aftermarket chip manufacturers were also quick to market reseters to make the spent chips re-usable.

Notably, Xerox introduced different regions for printer/cartridge combinations. Although the cartridges were identical, regional information on the chips prevented cross-regional cartridge usage (cartridge prices do vary from region to region). This regionalization has become popular with other OEMs as well, especially with Lexmark.

Multiple regions mean development of multiple chips to cover the different regions. While not necessarily complex, it adds to development time for aftermarket chips. In addition, chip architecture became more complex as the OEMs strived to block or hinder aftermarket development. The use of higher-level encryption and proprietary chip architecture further increased development time and product cost.

In our previous review of Lexmark firmware, we found a lot of activity on MS/MX machines between July and December of 2014. We took another look in March but found no firmware updates. A subsequent review in mid-April revealed a firmware update on all MS and MX machines.

Since these updates were released as this article was being completed, we did not have sufficient time to evaluate the impact of these updates. However, any updates that impact chip functionality will be reported as soon as that information is available. Constant monitoring of firmware update availability is critical. UniNet routinely reviews OEM sites for updates on key products by machine, and by region.



Of these major OEMs, firmware update monitoring is top priority:

- Lexmark - has historic track record of firmware updates impacting chip functionality.
- Samsung - increasing use of firmware updates to block replacement chips.
- Xerox - firmware updates may or may not include blocking replacement chips.
- HP - firmware updates rarely impact aftermarket chips, but functionality issues of "Genuine HP" vs. "Non HP" are being addressed via updates as they are encountered.
- Dell - usually follows Lexmark, but more regionalization has increased complexity.

This month, our featured OEM firmware listing is for Lexmark. As shown in the list below, Lexmark has released a number of firmware updates since April 1, 2015:

DESCRIPTION	REGION	BASE FIRMWARE	ENGINE FIRMWARE	FIRMWARE RELEASE DATE
Lexmark MX 310, 410, 510, 511, 611	AF	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MS 710, 711, 810, 811	AP	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 310, 410, 510, 511, 610, 611	AP	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 510, 511, 610, 611	AP	LW50.SB4.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 710, 711, 810, 811, 812	AP	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MS 310, 410, 510, 610	EU	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MS 810, 811	EU	LW50.DN4.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 410, 510, 511, 610, 611	EU	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 710, 711, 810, 811	EU	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MS 710, 711, 810, 811	LA	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 310, 410, 510, 511, 610, 611	LA	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 410, 510, 511, 610, 611	LA	LW50.SB4.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 710, 711, 810, 811, 812	LA	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 310, 410, 510, 511, 611	ME	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MS 710, 711, 810, 811	MX	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 310, 410, 510, 511, 610, 611	MX	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 410, 510, 511, 610, 611	MX	LW50.SB4.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 710, 711, 810, 811, 812	MX	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 310, 410, 510, 511, 610, 611	SA	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 410, 510, 511, 610, 611	SA	LW50.SB4.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 710, 711, 810, 811, 812	SA	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MS 710, 711, 810, 811	US	LW50.DN2.P543	FDN.DN.E709	14-Apr-15
Lexmark MX 310, 410, 510, 511, 610, 611	US	LW50.PR2.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 510, 511, 610, 611	US	LW50.SB4.P543	FDN.PIR.E618	14-Apr-15
Lexmark MX 710, 711, 810, 811, 812	US	LW50.DN2.P543	FDN.DN.E709	14-Apr-15

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