



Automatic Download/Installation of Distribution-Independent Printer Driver Packages

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- **Why auto-download of distro-independent driver packages?**
 - Distributions do not ship all available printer drivers
 - Free drivers from upstream need to be compiled by users -> driver installation too complicated for unexperienced users
 - Manufacturers make packages only for a few major distributions
 - Driver packages often difficult to find on manufacturer's web sites
 - Testing/packaging effort for manufacturers and driver developers too high to ship binary driver packages for all distributions
- **Existing Infrastructure we make use of**
 - **OpenPrinting database** (former linuxprinting.org), central database for printer/driver info
 - **LSB** provides tools and infrastructure to create **distribution-independent binary packages**



- **Solution**

- **Distribution-independent printer driver packages**

- Based on **LSB 4.0** for binary format
- Using **CUPS**, **Ghostscript** (with IJS, CUPS Raster and OpenPrinting Vector interfaces), **Perl**, and **foomatic-rip** which is on every distribution
- **LSB DDK** (Driver Development Kit) helps packaging the drivers correctly
- Make packages part of **OpenPrinting database**, so that they can be easily found
- Infrastructure for automatic package lookup, download, installation, and auto update through the internet by printer setup tools
- **system-config-printer** (Fedora/Red Hat, Ubuntu, Mandriva) already supports automatic download of driver packages



- **Distribution-independent**
 - One package for Linux, instead of one for Red Hat, one for SuSE, one for Ubuntu, ...
- **Binary packages**
 - User does not need to compile, system is also suitable for closed-source drivers
- **Same installation method for all driver packages**
 - A printer setup tool can easily install them automatically
- **One download location at the OpenPrinting site**
 - Easy to find for both humans and printer setup tools
 - Granting redistribution permissions of non-free drivers is much easier.



- **Driver query API for printer setup tools**
 - All needed info available: License, supplier, support contact, print quality indices. So the setup tool and the user can easily find the driver suiting best for him.
- **Distributions look up drivers at OpenPrinting**
 - Distributions do not need to support all printer models
 - So drivers newer than the distro are available, for updates and for new printer models.



- **Manufacturers have to take full responsibility on their drivers**
 - Distributions are supposed to download these non-distro packages by default
 - Users would make distros responsible if something goes wrong
 - Manufacturers should sign a legal agreement to take responsibility
- **Cryptographic code in drivers and export restrictions**
 - Use only standardized cryptographic technologies which come already with the OS
 - Host the driver packages on the manufacturer's site and link only from OpenPrinting
 - Repository on manufacturer's must be indexed for RPM and DEB (for automatic updates)
 - Repository linked from OpenPrinting web site to allow same look-up and download mechanism as for directly hosted drivers
 - Links on OpenPrinting web site have to be kept up-to-date



What is still needed?

- **Signing**
 - Packages uploaded by manufacturers must be electronically signed
 - OpenPrinting (or Linux Foundation) key must be shipped by distros
- **Repositories handled like at distros**
 - **main**: Drivers of trusted sources (usually manufacturers) who have signed responsibility agreement go here, only from this repository distributions automatically download and install by default (like “main” in the distros)
 - **contrib**: Upload to here does not require signing the agreement, but to automatically download from here the user has to activate this repository (like “contrib”, “universe”, ...) in the distros



- **Maintainer scripts: Only pre-defined procedures**
 - pre/post-install/uninstall scripts
 - To avoid arbitrary system changes by printer driver packages
 - Procedures pre-defined as macros in the LSB DDK
 - Add /opt/<supplier>/... to \$PATH
 - Symlink CUPS backends, filters, filter rules, and PPDs installed in /opt to appropriate system directories
 - Update PPDs of existing queues for this driver
 - Set up, start, and restart driver-specific daemons
 - Restart CUPS
 - Clean up all of the above when uninstalling



- **New features in the LSB**

- **SANE** (Scanner support) for multi-function devices (and also to cover scanners with the LSB DDK)
- **D-Bus**: Allows background processes (CUPS filters or backends) to interact with the user, for example by popping up GUI elements
 - HP's HPLIP does it for fax queues, to get banner pages and fax number
- **U-Dev**: Actions on auto-detecting devices, like permission settings, group ownerships, firmware upload



- **Meeting on Ubuntu Developer Summit in Mountain View**
 - <https://wiki.ubuntu.com/PrinterDriverAutoDownloadService>
- **General info**
 - <http://www.openprinting.org/>
- **For developers**
 - <http://www.linux-foundation.org/en/OpenPrinting/Development>
 - <http://www.linux-foundation.org/en/Developers>
- **For driver developers**
 - <http://www.linux-foundation.org/en/OpenPrinting/WritingAndPackagingPrinterDrivers>
- **For developers of printer setup tools**
 - <http://www.linux-foundation.org/en/OpenPrinting/Database/Query>
- **Available driver packages**
 - http://www.openprinting.org/driver_list.cgi
- **How to install driver packages**
 - <http://www.linux-foundation.org/en/OpenPrinting/Database/DriverPackages>