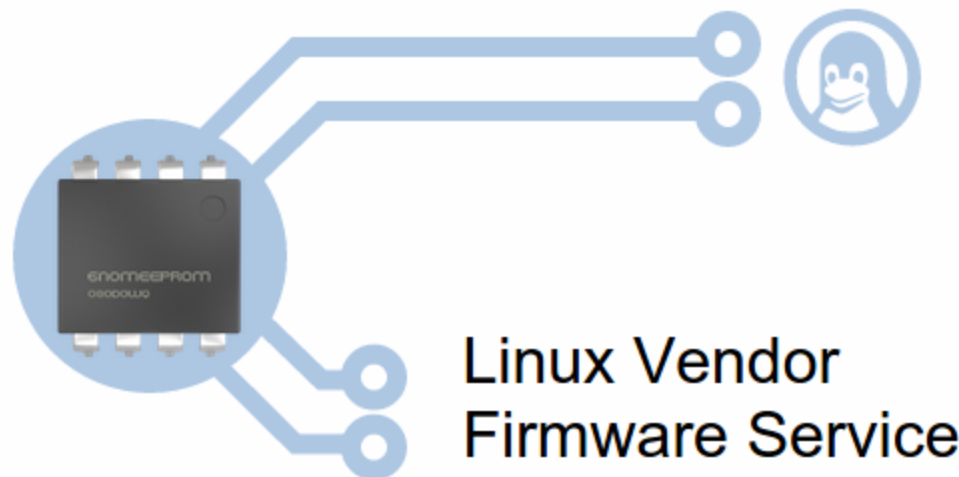


We ♥ Firmware Updates on Linux



Chicago GNU/Linux User Group, December 9, 2017

- Jim Campbell ([@j1mc](#))

Firmware is the best ❤️ ❤️ ❤️

Every morning I wonder if I'll get to update firmware that day

- If the answer is no, then I'm bummed-out.
- If the answer is yes, then I feel better.

Because updating firmware is something that is easy to do and users & other admins totally notice updated firmware and always appreciate it.

- Said by no one, ever

Some risk, not a lot of visible value

Not much of a "value add" - People don't notice updated firmware

You are at some risk of borking your system by applying updates

**Also, vendors haven't made it easy to
update firmware on Linux 😡**

The ways I've had to update firmware:

- Extract files from Windows binaries
- Follow instructions in forum posts
- Create FreeDOS USB drives
- Boot into Windows
- Dive into vendor documentation on how to deploy updates over AMT connections

But firmware updates are kinda important ⚠️ ⚠️ ⚠️

- Firmware updates can fix system performance issues
- Vendors will ask you if you've updated your firmware when you report a problem.
- They can include patches that fix security bugs

LVFS aims to simplify this

Project consists of two main things:

- Vendors providing information about what updates are available
- A mechanism to deploy firmware onto the hardware

On the vendor side

- It's free as in beer for vendors
 - Can be a mega-corp or a start-up. No fee either way.
- Vendors upload firmware to the site
 - Testing dir, stable dir . . . can embargo firmware updates
- Vendors can create their own plugins to interface with the service

What's included in the update?

Firmware is in the MS `cab` format, and consists of:

- The actual `cap` firmware file
- The `metainfo.xml` file with a long description and extra metadata
- The optional `inf` file describing the `.cap` file.
- The optional `cat` digital signature.

You can create the `cab` file on linux with `gcab --create`

Hosted Firmware

- The LVFS hosts the firmware for vendors (kind of like an Apt / Yum repo for firmware)
 - The update metadata is checked
 - The firmware capsule is signed with the LVFS GPG key
 - The new cab file is moved to the LVFS infrastructure
 - The metadata is added to the LVFS database

Front-ends to the service

- GNOME Software 👍
- `fwupdmgr` command-line utility 👍
- Dell's `Wyse Cloud Client Manager` for IoT devices

For servers and workstations/laptops, UEFI must be in use.

A look at the `fwupdmgr` command

- `fwupdmgr get-devices`
- `fwupdmgr refresh`
- `fwupdmgr get-updates`
- `fwupdmgr update`

fwupdmgr get-devices : Identifies supported hardware

```
jwc@blueearth:~$ fwupdmgr get-devices
XPS 13 9350 System Firmware
  DeviceID:                UEFI-33773727-8ee7-4d81-9fa0-57e8d889e1
  Guid:                    33773727-8ee7-4d81-9fa0-57e8d889e1
  Description:              <p>Updating the system firmware in
  Plugin:                   uefi
  Flags:                    internal|updatable|require-ac|supp
  Version:                  0.1.4.17
  VersionLowest:            0.1.4.17
  Created:                  2017-12-08
```

fwupdmgr refresh : Gets the catalog of firmware

```
Fetching metadata https://s3.amazonaws.com/lvfsbucket/dowr
Downloading... [*****]
Fetching signature https://s3.amazonaws.com/lvfsbucket/dov
Downloading... [*****]
```

fwupdmgr get-updates : Displays any available updates.

```
XPS 13 9350 System Firmware has firmware updates:  
ID: com.dell.uefi33773727.firmware  
GUID: 33773727-8ee7-4d81-9fa0-57e8d889e  
Update Version: 0.1.5.1  
Update Remote ID: lvfs  
Update Checksum: SHA1(1bb95787c07612137e6cd00ea0b1  
Update Location: https://fwupd.org/downloads/8f821
```

fwupdmgr update : Will download and apply the update.

- Online updates (e.g., webcam firmware) will be done immediately.
- Offline updates (e.g, BIOS) will be staged for the next reboot.

Is my device supported?

You can find out!

Check the [device support list](#).

Is my hardware vendor participating?

Many are, but it could be better.

Info is available on the [vendor engagement list](#).

Contact your vendors & let them know you shop (in part) based on this list.

Resources

- LVFS Homepage: <https://fwupd.org/>
- Git Repository: <https://github.com/hughsie/fwupd>
- Mailing List: <https://groups.google.com/forum/#!forum/fwupd>

Questions ? ? ?