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Device Firmware Update (DFU) for Linux
DFU Usage & Options Menu

- Device Firmware Update (DFU) tool required to update Intel® RealSense™ D400 series camera firmware.
- Camera firmware is updated using “signed firmware” binary files provided by Intel Corp.
- Latest available “signed firmware” binary file can be downloaded from https://realsense.intel.com/intel-realsense-downloads/#firmware

DFU for Linux Tool Options Menu

Usage: intel-realsense-dfu [OPTIONS]
[OPTIONS]
-b usb bus number of device
-d usb device number of device
-e increase verbosity of exceptions
-f force firmware update
-i <input file> path to firmware file
-p print firmware versions when correct bus number, device number, and filenames are given
-v print firmware update tool version
-h display this message and exit
### Depth Cameras Supported by DFU Tool

<table>
<thead>
<tr>
<th>DEPTH CAMERA</th>
<th>DESCRIPTION</th>
<th>PACKAGE CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Intel® RealSense™ Depth Camera D415" /></td>
<td>Intel® RealSense™ Depth Camera D415</td>
<td><img src="image" alt="Intel® RealSense™ Depth Camera D415" /> <img src="image" alt="USB3.1 Type-C to USB3.1 Micro-B Cable" /> (Used to connect Depth Camera to host USB3.1 port)</td>
</tr>
<tr>
<td><img src="image" alt="Intel® RealSense™ Depth Camera D435" /></td>
<td>Intel® RealSense™ Depth Camera D435</td>
<td><img src="image" alt="Intel® RealSense™ Depth Camera D435" /> <img src="image" alt="USB3 Type-C to USB3 Micro-B Cable" /> (Used to connect Depth Camera to host USB3.1 port)</td>
</tr>
</tbody>
</table>

- DFU Tool supports firmware updates for integrated depth cameras built with Intel® RealSense™ Vision Processor D4 and Depth Modules from Intel® RealSense™ D400 series
- For information on Intel® RealSense™ D400 series, refer to Datasheet at https://realsense.intel.com/intel-realsense-downloads/#documents
Best Known Configuration (BKC)

Intel will specify the version of each component that should be used in the setup for each software release. To ensure Intel can provide the best support it is important that the version of each component matches the latest “best known configuration” table.

Ubuntu* 16.04 Host Hardware Requirements:

<table>
<thead>
<tr>
<th>Component</th>
<th>Usage</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel based platform with USB3.1 port</td>
<td>Host System</td>
<td>N/A</td>
</tr>
<tr>
<td>4GBs DDR RAM</td>
<td>Required for Intel® RealSense™ D400 series camera functionality</td>
<td>SODIMM</td>
</tr>
<tr>
<td>&gt;128 GB HDD/SSD</td>
<td>At least 128GBs for OS + Packages</td>
<td>N/A</td>
</tr>
<tr>
<td>Intel® RealSense™ D400 Series</td>
<td>Depth Camera</td>
<td>D400/D410/D415/D420/D430/D435</td>
</tr>
</tbody>
</table>

Ubuntu* 16.04 Host Software Requirements:

<table>
<thead>
<tr>
<th>Component</th>
<th>Usage</th>
<th>Version</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host Operating System - Ubuntu* 16.04</td>
<td>Device Firmware Update (DFU)</td>
<td>Ubuntu 16.04.3 LTS</td>
<td>System Settings -&gt; Details</td>
</tr>
</tbody>
</table>

The software installation process requires industry tools and software to be installed on a host system. The version of these tools is less strict than the software components itself, but it is recommended to align versions where possible.
DFU Tool Install/Usage
Installation Steps - The Linux* DFU downloadable package is distributed via Amazon AWS
(NOTE: Make sure internet connection is not behind a firewall, corporate network connections NOT RECOMMENDED)

1. Open terminal, press Ctrl + Alt + T.
2. Add Intel server to list of repositories:
   i. `echo 'deb http://realsense-hw-public.s3.amazonaws.com/Debian/apt-repo xenial main' | sudo tee /etc/apt/sources.list.d/realsense-public.list` [Enter]
3. Register the servers public key:
   i. `sudo apt-key adv --keyserver keys.gnupg.net --recv-key 6F3EFCDE` [Enter]
4. Refresh the list of repositories and packages available:
   i. `sudo apt-get update` [Enter]
5. Install the intel-realsense-dfu package:
   i. `sudo apt-get install intel-realsense-dfu*` [Enter]
6. Download latest D400 series firmware .bin file (Signed Binary):
   i. Click on this link: [Link]
   ii. Notice “Intel Corp.” bus and device numbers; DFU tool uses these values to identify Intel® RealSense™ D400 series camera.
Installation Steps (Contd.)

8. Upgrade D400 Series Camera Firmware with Linux DFU Tool:
   i. Type command:
      (This command specifies bus #, device #, -f flag to force upgrade, and –i flag for complete system path to downloaded FW.bin file.)
      `intel-realsense-dfu –b 002 –d 002 –f –i /home/intel/downloads/Signed_Image_UVC_5_9_2_0.bin`
      [Enter]

9. Tool will begin upgrade process, and notify when upgrade is complete.

10. Firmware Check:
    i. Check firmware with command:
       `intel-realsense-dfu –p` [Enter]
Intel Customer Support via Email
Intel® Customer Support via Email


Intel® Customer Support
1. Go to http://customercare.intel.com and Sign Up to create an account.
2. Create an account.
3. Request Support and sign in.
4. Enter “RealSense” under “3. Find your product or service”.

1. Go to http://customercare.intel.com and Sign Up to create an account.
2. Create an account.
3. Request Support and sign in.
4. Enter “RealSense” under “3. Find your product or service”.

3. Find your product or service

Request Support
Let us help with your service and warranty issues (sign in required)
Intel® Customer Support via Email (Cont.)

- Submit a service request to Intel Customer Support through email at http://customercare.intel.com

Intel® Customer Support

5. Select the RealSense™ Product you need support for.
6. Describe your issue and click on “Next Details”.
7. Provide more details on environment and issue.
8. Once all details are entered, submit request.
RealSense™ Community Issue Submission
Customers need to login on the Intel® RealSense™ Community
RealSense™ Community Link: https://communities.intel.com/community/tech

RealSense™ Community – Issue Submission Form

1. Open Welcome document, click: https://communities.intel.com/docs/DOC-111552
2. Click on “Click HERE to register”.
3. Register your account with valid email address. A verification email will be sent to registered email address.
4. Log into your email and activate account by clicking on link from Intel® email.
5. Return to website and log in: https://communities.intel.com/community/tech
- Customers need to login on the Intel® RealSense™ Community
- RealSense™ Community Link: https://communities.intel.com/community/tech

**RealSense™ Community – Issue Submission Form**

6. Click on “Intel® RealSense™ Community under “Boards and Kits”.
7. Click on link “Ask a question.”
8. A window will open and user can ask a question or state an issue they are seeing with their RealSense™ Camera.
   > Use a proper title (IE: D410 Intel® RealSense™ Camera does not stream video)
   > Enter as much details about issue as possible. The more information – the better the RealSense™ community can help with an issue.
   > Select a category for issue, such as “RealSense™ for PC”, depending on what camera is being used.
9. When all information is entered, click “Post” submit issue to RealSense™ Community.
Issue Submission via GitHub
Issue Submission Process on GitHub

- Customers need to create a GitHub account and login.
- GitHub Link: https://github.com/Intel®™ RealSense™ /libRealSense™ /issues

GitHub Issue Submission Process for LibRealSense™ Releases
1. Once logged into site, click on “Issues” tab.
2. Click “New Issue” Icon.
3. Enter proper name of new issue.
4. Fill out required information such as, camera model, FW version, OS, and actual issue description.
5. When finished documenting issue, click icon “Submit new issue”.
6. Once a new issue is submitted, a forum is created allowing for Intel®™ teams to begin fixing / commenting on new issue.