INTEL® REALSENSE™ D400 SERIES

DEVICE FIRMWARE UPDATE (DFU) TOOL FOR WINDOWS

INSTALL AND USER GUIDE

VERSION 1.4

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Device Firmware Update (DFU) for Windows

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.
- DFU tool and latest available “signed firmware” binary file can be downloaded from https://realsense.intel.com/intel-realsense-downloads/#firmware

DFU for Windows Tool Options Menu

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================================================================================================
Intel (TM) D400 Windows Device Firmware Update Tool for Intel RealSense Technology Main Menu
1: Update Camera Device.
2: Show camera devices that can be upgraded.
3: Recover devices stuck in Upgrade Mode.
4: Show connected camera device details.
5: Configure D400 Series Windows Device Firmware Update Tool Settings (Can run with or without camera device connected).
Q: Quit
```

Depth Cameras Supported by DFU Tool

DEPTH CAMERA	DESCRIPTION	PACKAGE CONTENTS
	Intel® RealSense™ Depth Camera D415	**Intel® RealSense™ Depth Camera D415** **USB3.1 Type-C to USB3.1 Micro-B Cable** (Used to connect Depth Camera to host USB3.1 port)
	Intel® RealSense™ Depth Camera D435	**\Intel® RealSense™ Depth Camera D435** **USB3 Type-C to USB3 Micro-B Cable** (Used to connect Depth Camera to host USB3.1 port)

- 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.

Windows* 10 Host Hardware Requirements:

Component	Usage	Version
Intel processor-based platform with USB 3.1 port	Host System	N/A
4GBs DDR RAM	Required for Intel® RealSense™ D400 series camera functionality	SODIMM
>128 GB HDD/SSD	At least 128GBs for OS + LibRealSense Packages	N/A
Intel® RealSense™ D400 Series	Depth Camera	D400/D410/D415/D420/D430/ D435

Windows 10 Host Software Requirements:

Component	Usage	Version	Location
Host Operating System - Windows 10	Update Camera Firmware / Run LibRealSense Examples	Windows 10, 64bit RS2 (Ver. 1703) Pro, 64bit	Press START Button -> Type “Winver” -> Press [ENTER]
Device Firmware Update Tool (DFU) for Intel® RealSense™ D400 Series Cameras	Install latest camera firmware on RealSense™ Cameras	Public Release	https://realsense.intel.com/intel-realsense-downloads/#firmware
Signed Firmware .bin file	Firmware .bin file for camera firmware update	Public Release	https://realsense.intel.com/intel-realsense-downloads/#firmware

CAUTION

The software installation process requires industry tools and software to be installed on a host system. The version of these tools is less strict then the software components, but recommended to align versions where possible.

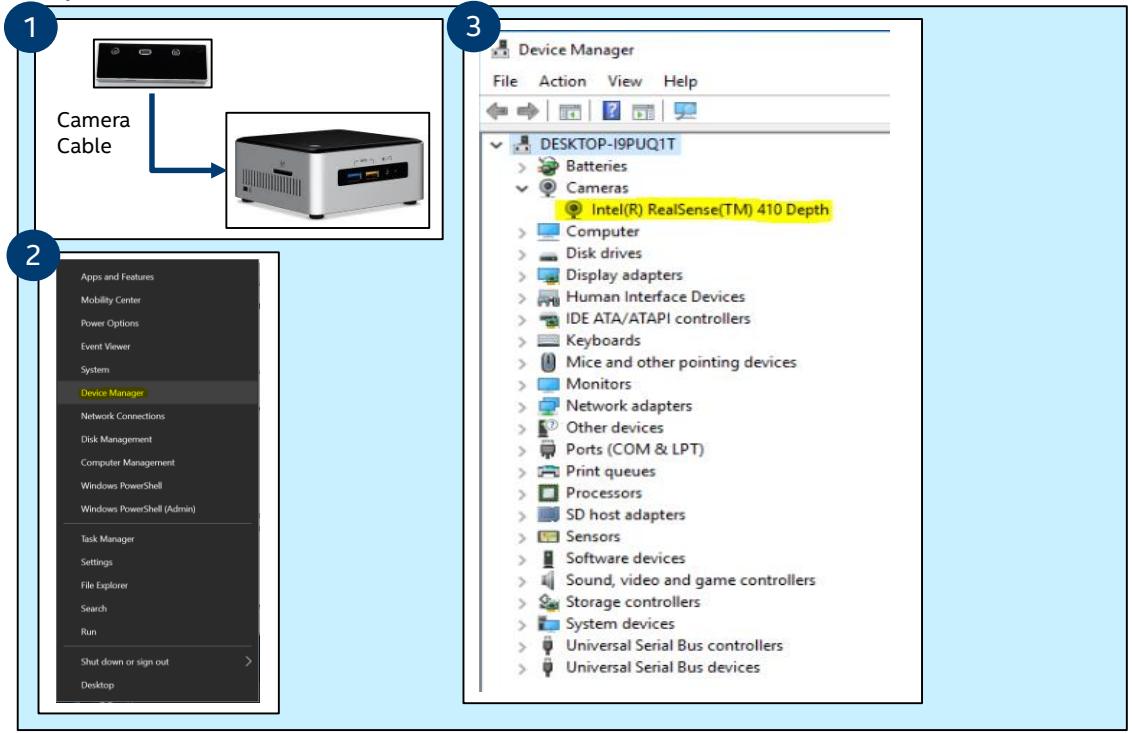
Camera Enumeration

Device Enumeration – Windows* 10 Host System

In order for Windows* 10 to recognize D400 Series devices and install correct drivers; all Windows Updates must be applied prior to plugging D400 Series camera to Windows Host System. For below instructions, *D410* camera was used, device enumeration will differ from D400/D415/D420/D430/D435. Driver installation across Windows* 10 remains the same.

Enumeration Details

1. **Plug D400 Series** camera to **Windows 10 Host** via **USB3.1 port**.
   > **"Setting Up Device"** dialog box should appear on very first plug in of device.
2. Open **Device Manager**
   > Right click Start button.
   > Click on Device Manger.
3. **Notice** the D400 series number of appropriate camera is shown under "Cameras".
   If camera is not shown under **"Cameras",** please make sure all **Windows 10 Updates** are downloaded and installed.
   Also verify if **Windows 10 RS2 1706** is installed.

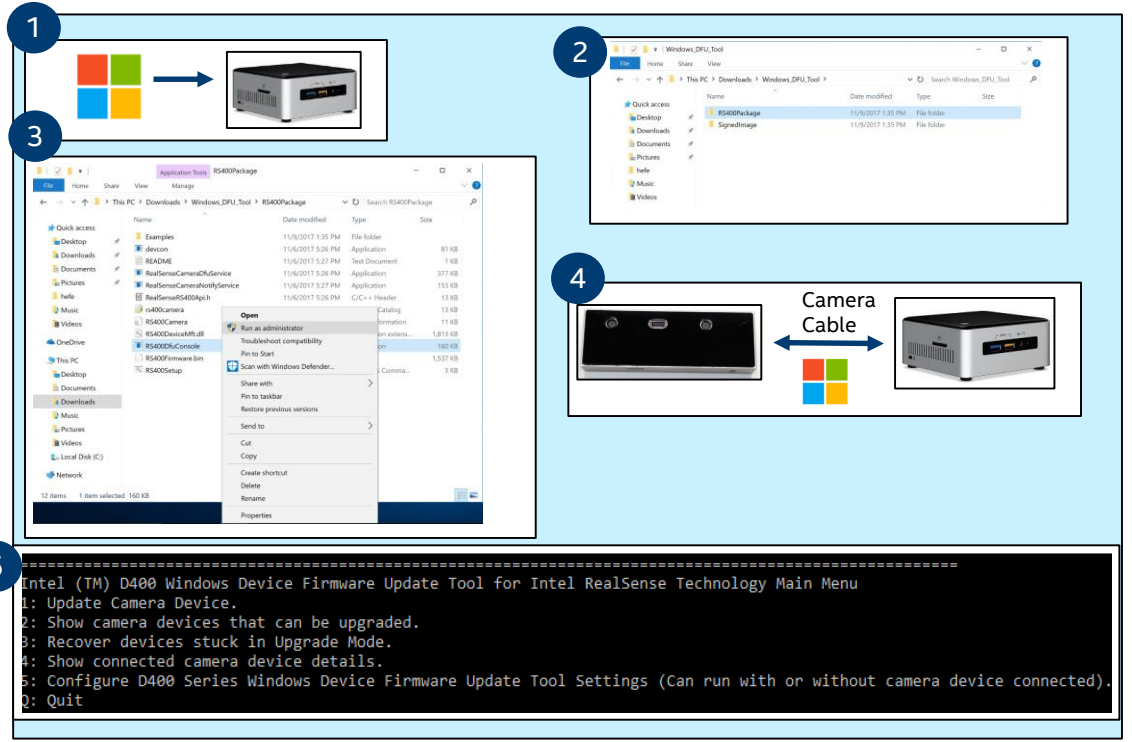


DFU Tool Install/Usage

DFU Tool Install/Usage on Windows* 10 Host

Steps

1. Install Windows* 10 on Host with USB3.1 port.
2. Copy and paste DFU tool and corresponding D400 series firmware .bin files (signed firmware) to Windows* 10 host system.
   Note what directory files are stored.
3. Open to DFU Tool directory; and right click **"intel-realsense-dfu.exe"** and choose, "Run as administrator".
   > You can also open a command line as admin and
   run the "intel-realsense-dfu.exe" from there.
4. Plug in D400 series camera/s to host USB3.1 port
5. Command line window should appear with main menu of tool being displayed.
   - Press "2" then [ENTER] to display a list of upgradeable cameras.



DFU Tool Install/Usage on Windows* 10 Host

Steps (Contd.)

6. Notice a list is produced in command line window; press “1” [ENTER] to select D400 series camera and begin firmware update process.
7. Prompt asks user to input file path of firmware .bin file.
   > Type the full file path with firmware filename included and press [ENTER].
8. Notice output of downloaded bytes transmitting, this process takes ~3 minutes until completion.

6

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============================================================
Intel (TM) Updatable Devices List
[1]Intel(R) RealSense(TM) 420 Depth (FW Version: 5.8.15.0)
[2]Intel(R) RealSense(TM) 415 Depth (FW Version: 5.9.2.0)

Press any key to continue . . .
```

7

```
============================================================================
Intel (TM) Firmware Update:
[1] Intel(R) RealSense(TM) 420 Depth (FW Version: 5.8.15.0)
[2] Intel(R) RealSense(TM) 415 Depth (FW Version: 5.9.2.0)

Enter camera number to update: (any out of bounds index to go back to main menu)1
Enter path and filename (e.g. c:\Documents\newFirmware.bin: )
```

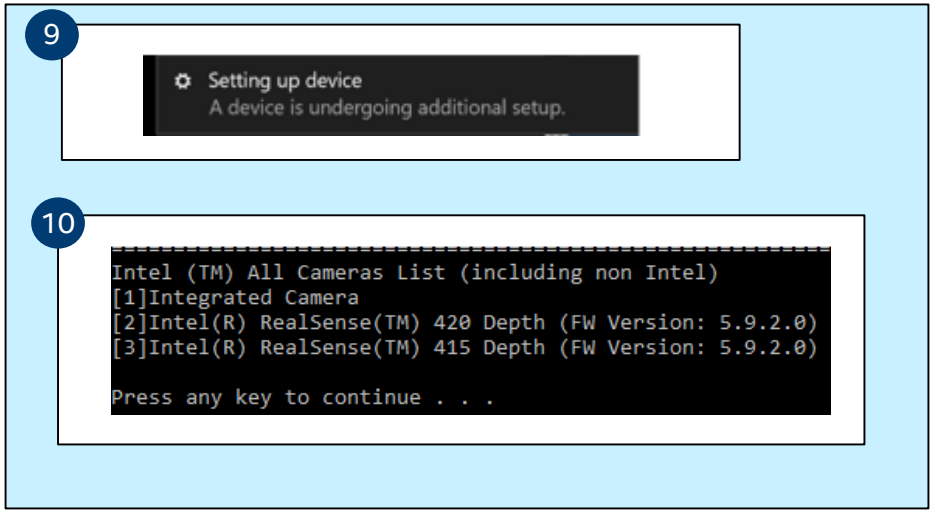
8

```
C:\Users\intel\Downloads\Windows_DFU_Tool\RS400Package\RS400DfuConsole.exe
Downloaded 1024, bytes remaining 1481500
Downloaded 1024, bytes remaining 1480476
Downloaded 1024, bytes remaining 1479452
Downloaded 1024, bytes remaining 1478428
Downloaded 1024, bytes remaining 1477404
Downloaded 1024, bytes remaining 1476380
Downloaded 1024, bytes remaining 1475356
Downloaded 1024, bytes remaining 1474332
Downloaded 1024, bytes remaining 1473308
Downloaded 1024, bytes remaining 1472284
Downloaded 1024, bytes remaining 1471260
Downloaded 1024, bytes remaining 1470236
Downloaded 1024, bytes remaining 1469212
Downloaded 1024, bytes remaining 1468188
```

DFU Tool Install/Usage on Windows* 10 Host

Steps (Contd.)

9. When firmware upgrade is complete, the camera will reset. A windows icon saying “Device is undergoing additional setup” should pop up.
   The main menu will appear again.
10. Verify the firmware version installed on camera by pressing, “4” and [ENTER] followed by “1” and [ENTER]
    Notice the firmware version has changed on the Intel® RealSense™ Camera selected for firmware update



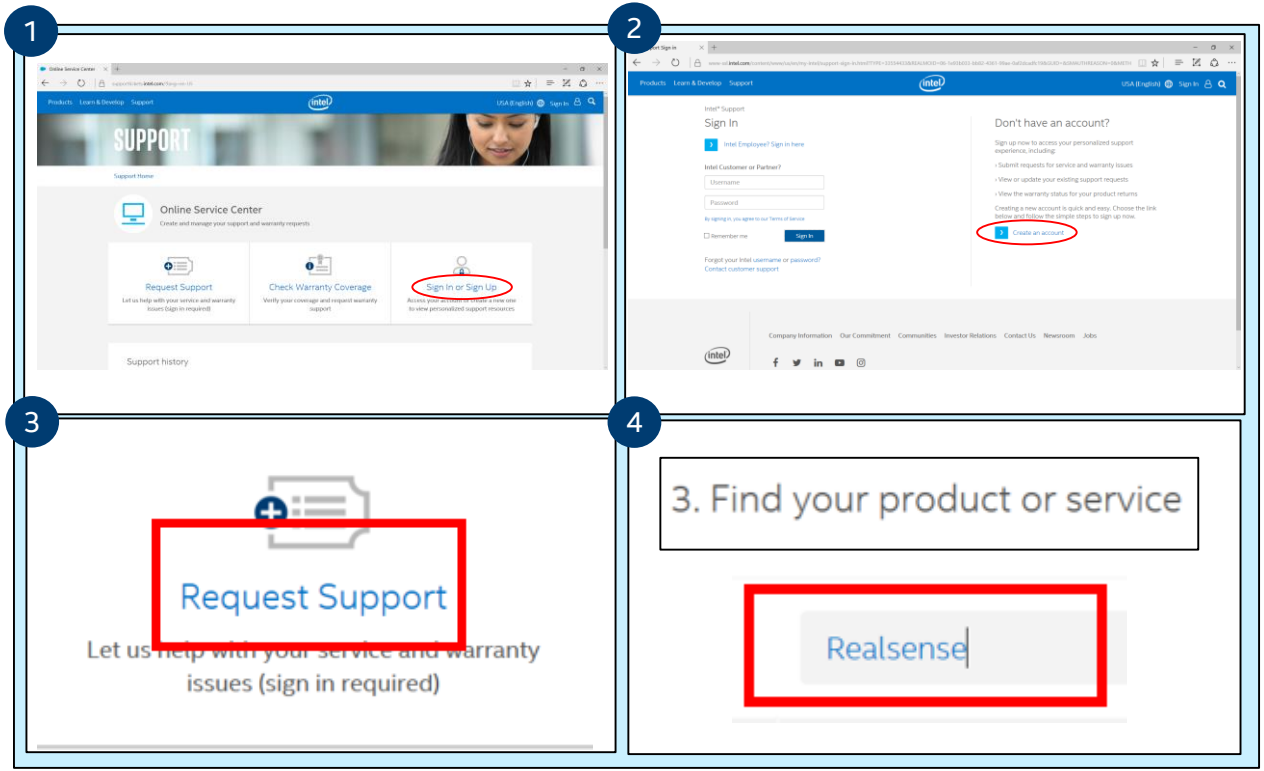
Intel Customer Support via Email

Intel® Customer Support via Email

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

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”.

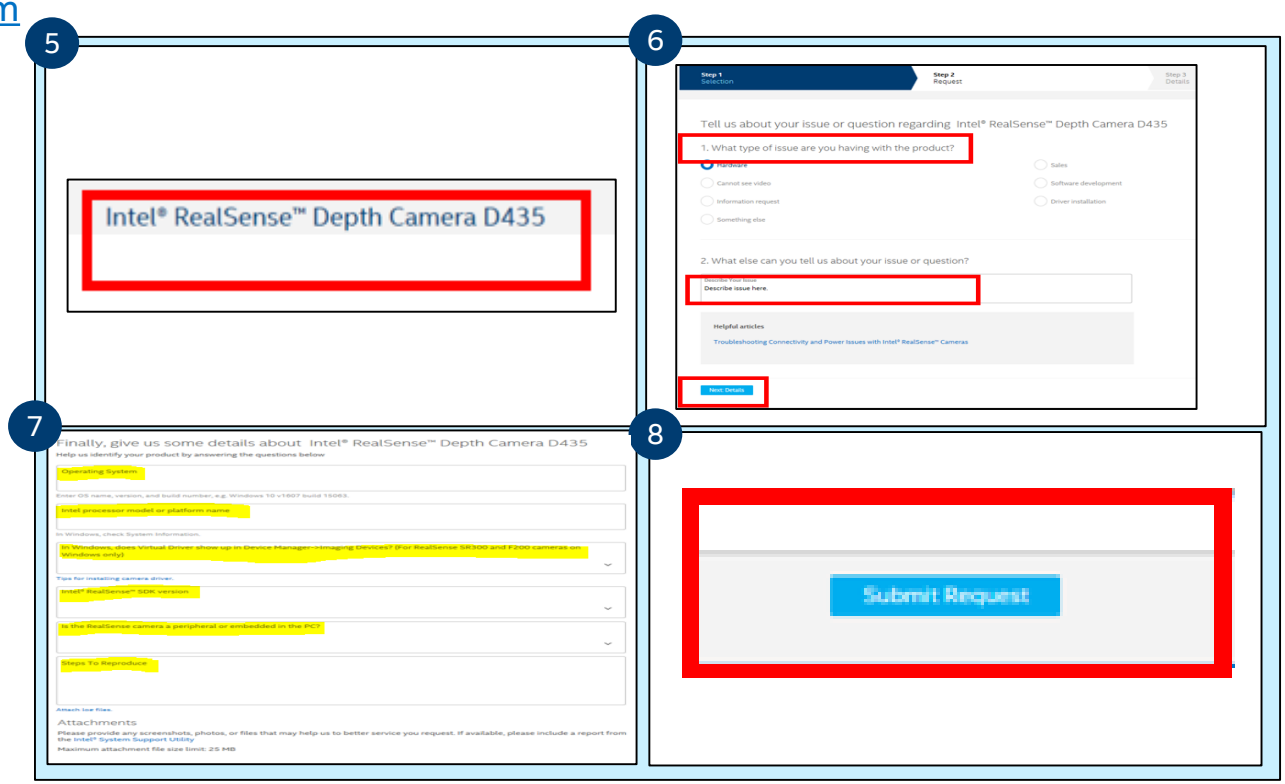


Intel® Customer Support via Email (Cont.)

- 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.



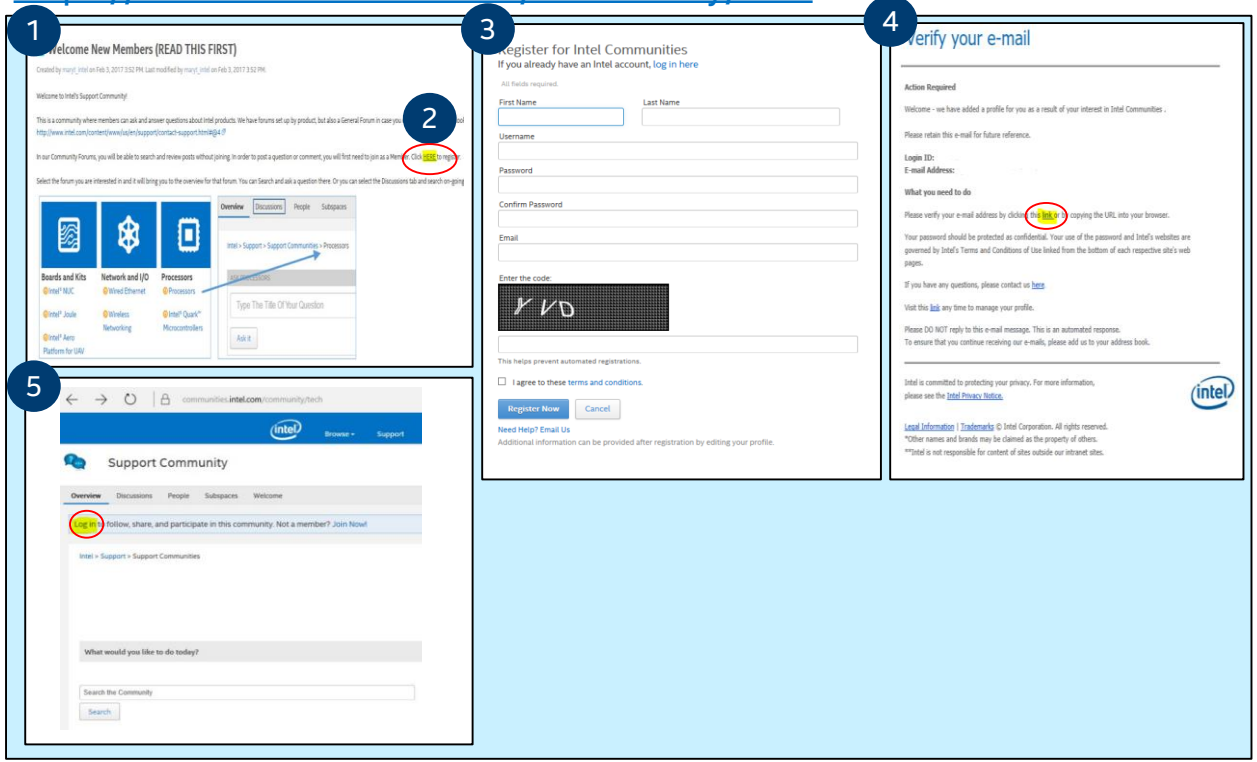
RealSense™ Community Issue Submission

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

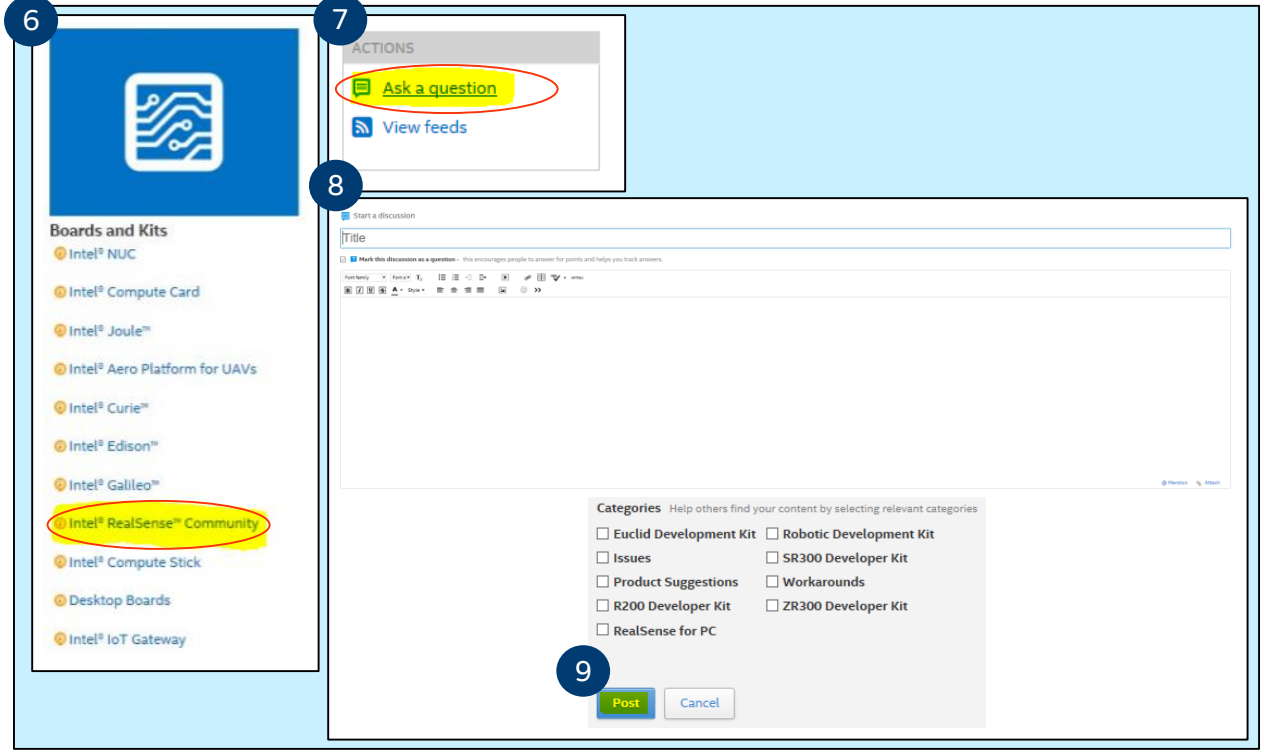


RealSense™ Community Issue Submission (Cont.)

- 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.



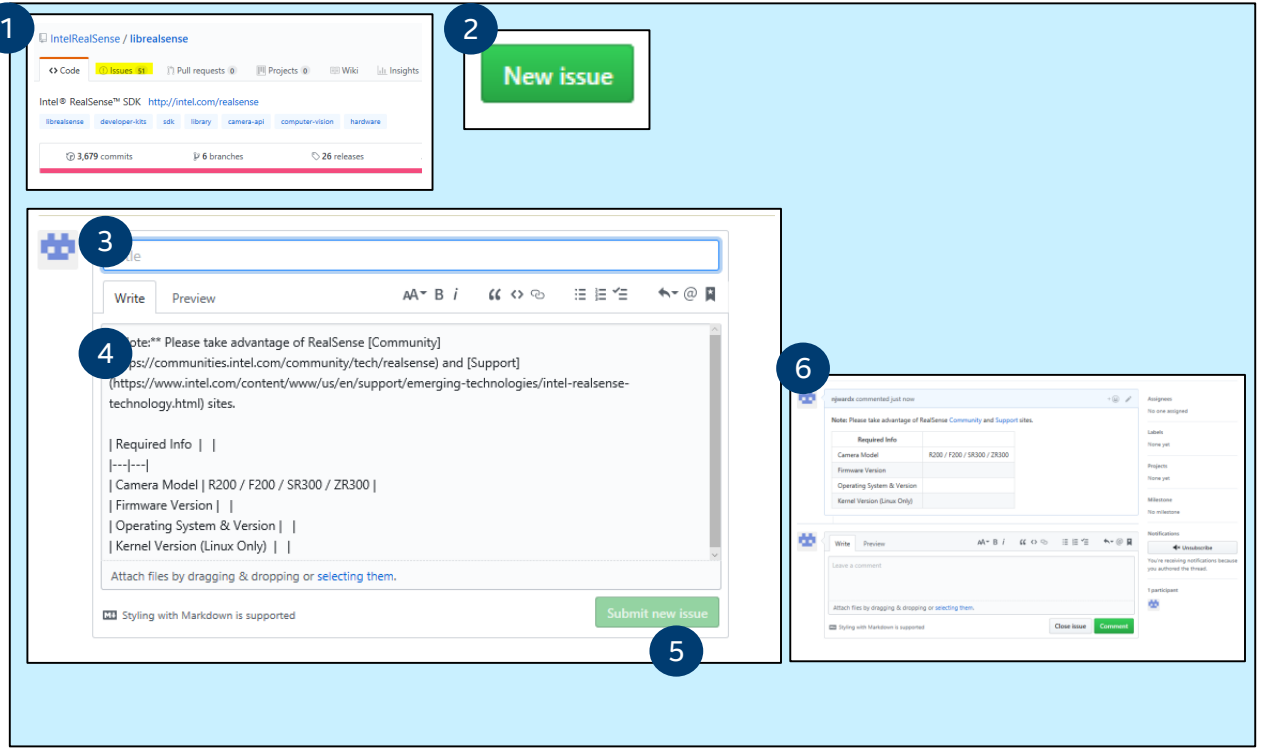
Issue Submission via GitHub

Issue Submission Process on GitHub

- Customers need to create a GitHub account and login.
- GitHub Link: https://github.com/IntelRealSense/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.



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