

# PTV1000/2000/6000 Firmware Upgrade

## Instructions

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### Introduction


This document describes how to update the firmware on the PTV1000/2000/6000 using the USB port on the PCM. The same firmware file is used for each hardware version.

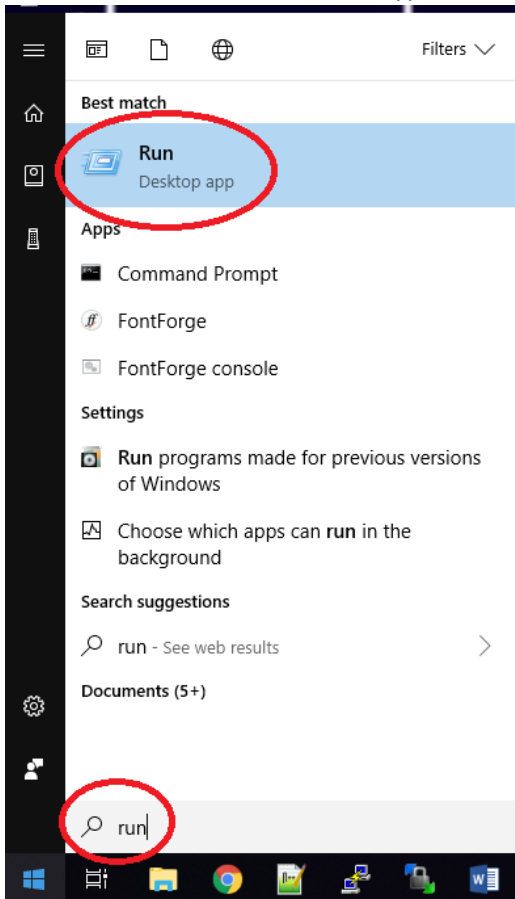
### Contents

Introduction .....	1
Determine Your Operating System .....	2
Driver Files .....	3
Connecting the PTV.....	4
Opening Device Manager.....	5
Windows 8 & 10.....	5
Windows 7 .....	6
Identify the COM Port.....	7
Obtaining Software .....	8
Flashing software .....	8
Firmware files.....	8
Programming Steps.....	9

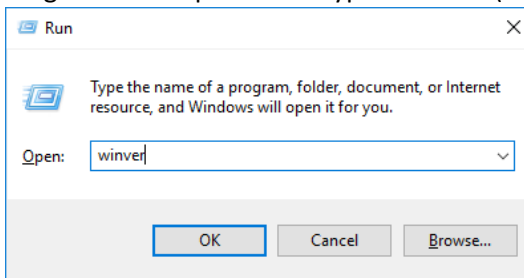
## Determine Your Operating System

The purpose of this section is to help identify the version of the Windows Operating system that you are currently using. This is important because the next step, Driver Files, requires you to know the version of the operating system that you are currently using.

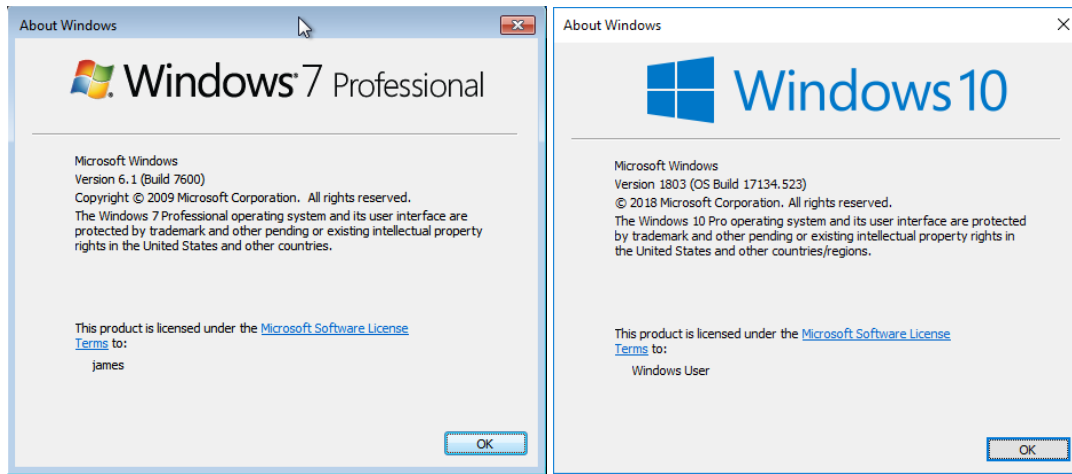
1. Press the "  + r" on your keyboard. A dialog box should appear.
  - a. If not click the Start button and type "run" in the search box and execute the application called "Run".



- b.
2. In the dialog box that is presented type "winver" (without the quotes).



- a.
3. Click the OK button. A new dialog should be presented that will tell you the version of Windows that you are currently running.



a.

4. Take note of the version (Windows 7,8 or 10) because you will need it in the next step.

## Driver Files

Driver files are what tell your computer how to interact with a connected device. Both your operating system version and the device that you have connected determine what driver you need to use. We are going to connect a PTV device, so that means we need a “CP210x VCP” (Virtual Com Port) driver from Silicon Labs. Silicon Labs offers multiple versions of this driver depending on your operating system, so be sure you are downloading the correct version.

1. Go to <https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers> and download the driver appropriate for your operating system version.

## Connecting the PTV

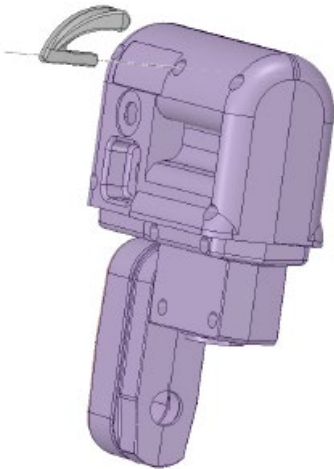
A few very specific things must be done to connect the PTV device to your computer and have it be recognized correctly. Please follow the steps below to ensure that the PTV is in the correct operating mode to be connected to a PC. It is crucial that the PTV be power cycled once the service key has been installed.

1. Open the cover on the PCB and plug a Micro-USB cable into the connector near the red thumb screw. Plug the other end into your Windows computer.



a.

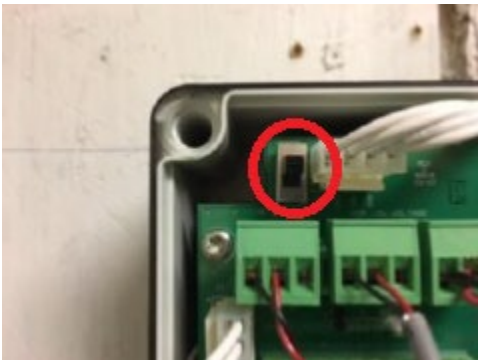
2. Install the service key on the PTV1000. The skinny tab of the programming key should be inserted into the middle screw boss on the back of the measurement module as shown below.
  - a. Note: The newer service key shipping from Dortmund looks like a short pencil, it can be placed above the center screw on top of the PTV1000. Due to the round nature of both parts, the service key will need to be held in place with one hand, while cycling power with the other hand.



b.



3. Turn the PCM 24V power switch off then back on. The display on the PTV1000 should now be blank.



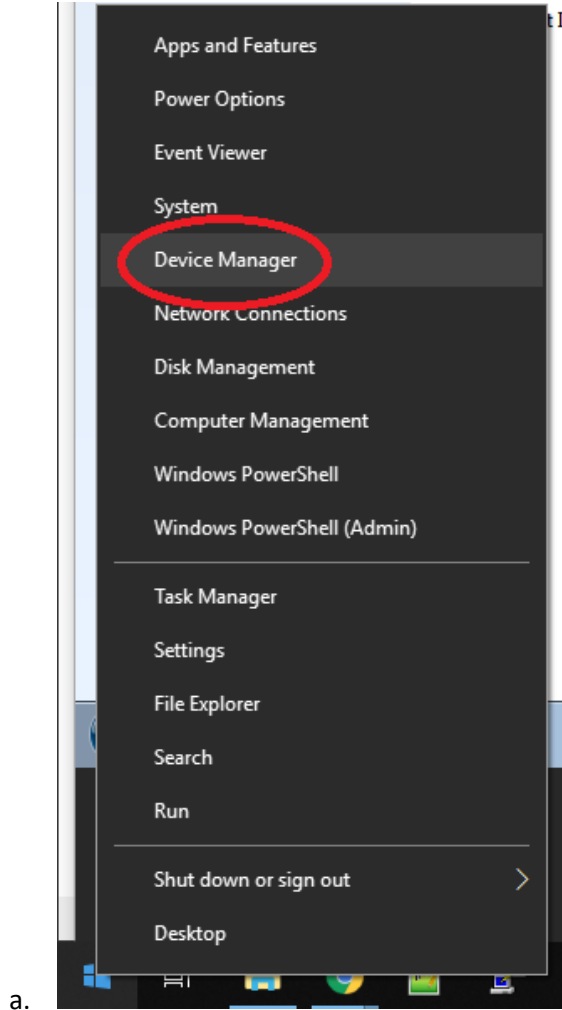
a.

## Opening Device Manager

Now that your PTV device is connected to your computer and in the correct operating mode, we need to make sure that your computer has identified the PTV correctly. The device manager tells us if the driver matches our operating system and the device that is plugged in. It will also help identify the COM port that has been assigned to the PTV.

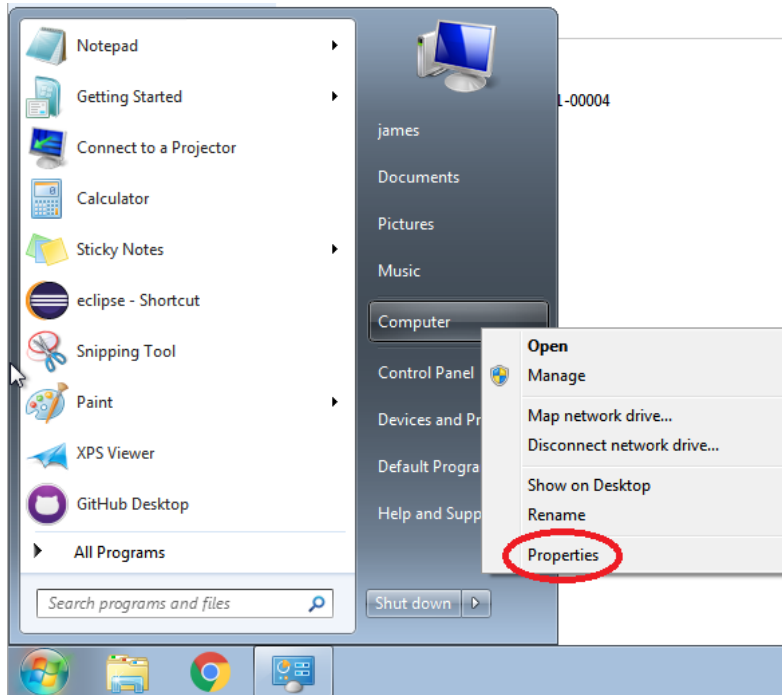
### Windows 8 & 10

1. **RIGHT** click the Start menu and select device manager.

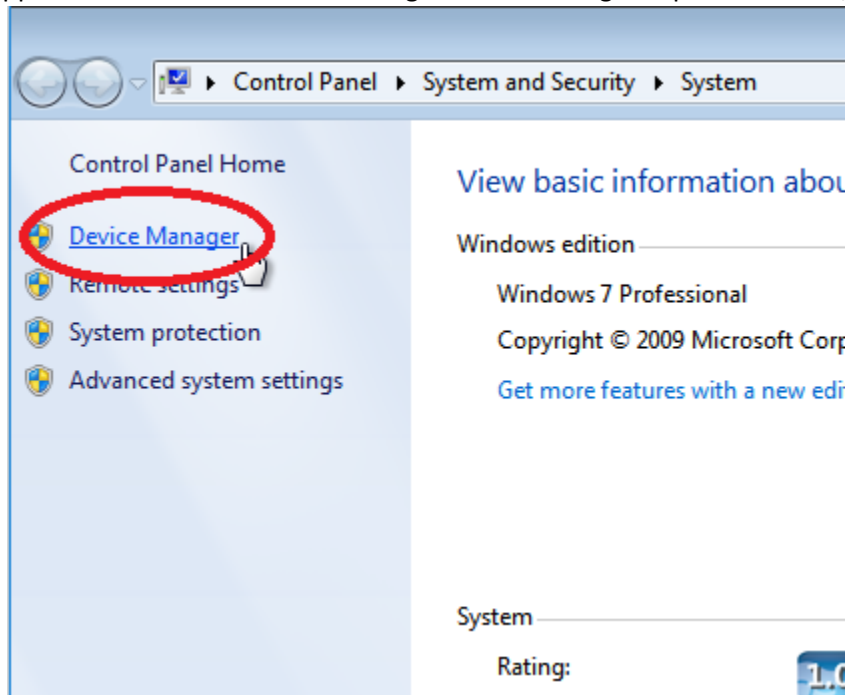


## Windows 7

1. **LEFT** click the start menu, and then **RIGHT** click on Computer and select Properties:



- a.
  - b. A dialog should present itself.
2. In the upper left-hand corner of this dialog a "Device Manger" option is visible, click it.

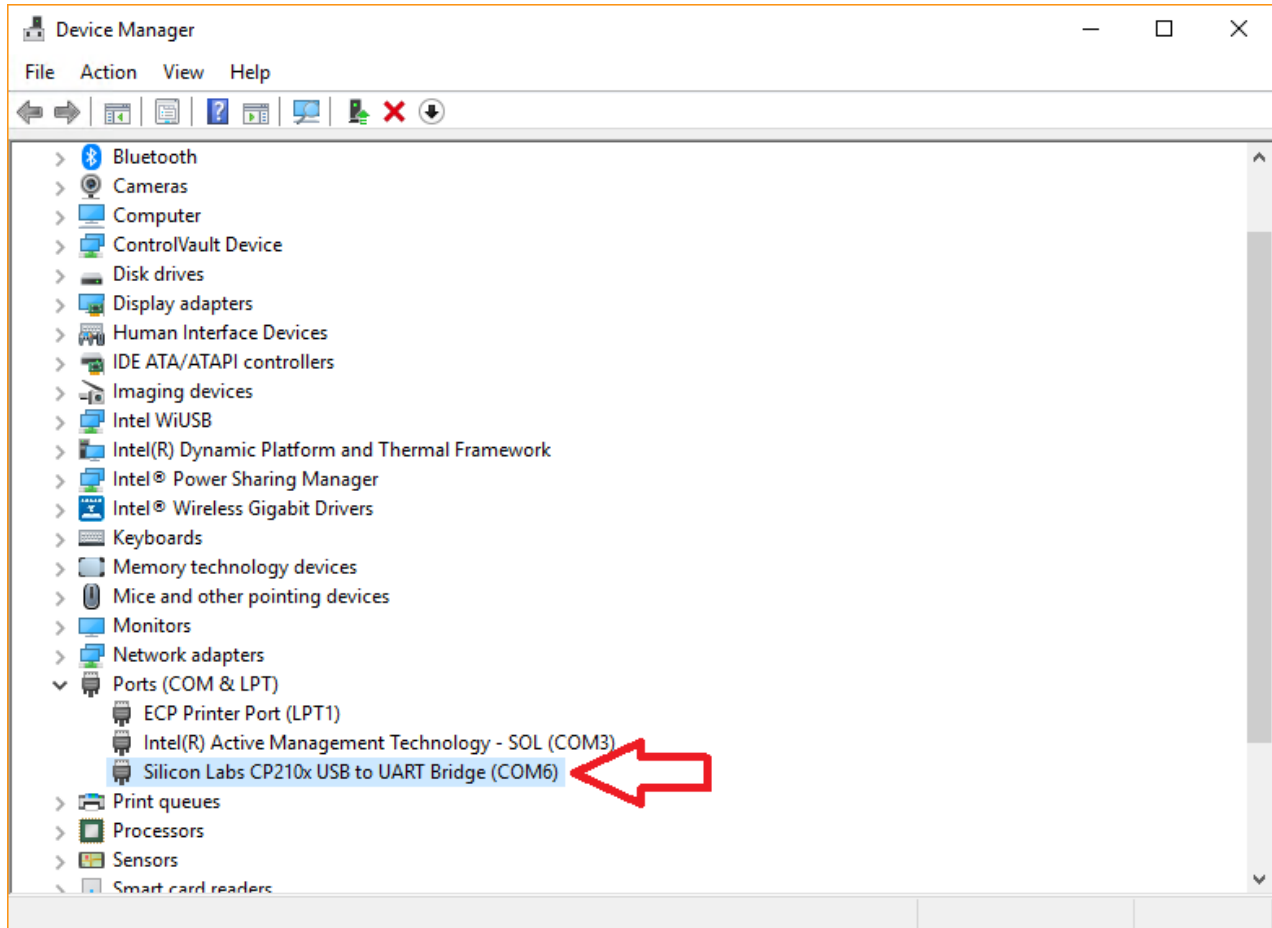


a.

## Identify the COM Port

Once the Device Manager is opened, determine the COM port that has been assigned to the PTV. Follow the steps outlined below to identify your COM port.

1. In the device manager, look for the section titled “Ports (COM & LPT)” and expand it.
2. Within this section, there should be a device labeled something like “Silicon Labs CP210x USB to UART Bridge (COM6)”. The COM port can be different, this is what we are trying to identify.



- a.
- b. Take note of the COM port that has been assigned.

## Obtaining Software





### Flashing software

We need to have a piece of software installed on our computer that will communicate with the PTV device via the COM port we have just identified. This piece of software is provided by the processor vendor ST.

1. Download and install the ST Flash Loader program from the Tintometer dropbox
  - a. \\Dropbox\Lovibond\Projects\Lake Geneva\Process turb\Firmware\STM Flasher Utility\en.flasher-stm32.zip
2. or the ST website
  - a. <http://www.st.com/en/development-tools/flasher-stm32.html>
    - i. If using this option, you must sign up for an account with ST before downloading

### Firmware files

1. Download the latest .hex firmware file from the Tintometer website.
2. Go to the following website:
  - a. <https://www.lovibond.com/en/PM/Water-Testing/Products/Process-Instruments/PTV-1000-ISO>
3. Click the Downloads tab near the bottom of the page.
4. Select the PTV Firmware direct download option.

<div>Products Downloads Videos</div>				
Title	Online Download Type	Format	Language	Direct Download
Instruction Manual PTV series	Instruction Manual	PDF (7.04 MB)	English ▾	
Instruction Manual Junction Box	Instruction Manual	PDF (2.46 MB)	English ▾	
PTV Firmware	Software	ZIP (44.22 MB)	English ▾	
EU-Declaration of Conformity PTV series without Bluetooth	Declaration of Conformity	PDF (0.19 MB)	English ▾	

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5. This download contains a lot of files, but most importantly the firmware file. This file is located inside the main .zip file under a folder called “PTV Firmware”.

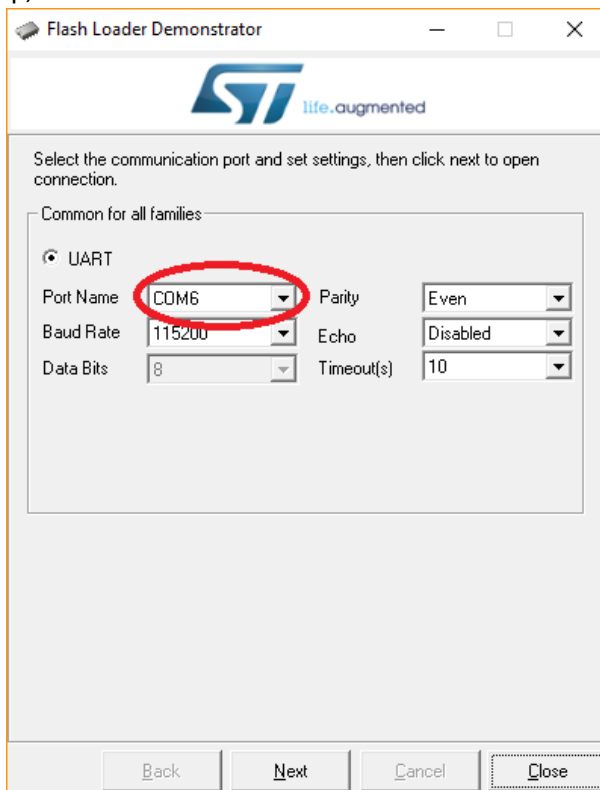
PTV Releases > 1.5 > PTV Firmware					Search PTV Firmware	
<input type="checkbox"/>	Name	Date modified	Type	Size		
<input type="checkbox"/>	PTV FW 1.5.axf	11/6/2018 10:11 AM	AXF File	5,042 KB		
<input checked="" type="checkbox"/>	PTV FW 1.5.hex	11/6/2018 10:11 AM	HEX File	1,208 KB		
<input type="checkbox"/>	Release Export All Log Types - Tintome...	11/6/2018 11:38 AM	URL File	1 KB		

- a.
- b. Keep track of the location of this file because the flashing software is going to need to know about it.



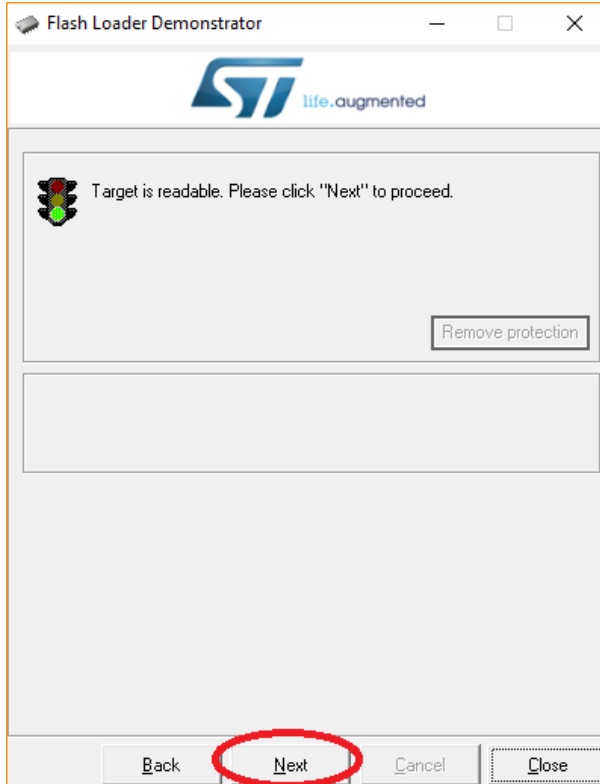
## Programming Steps

1. Start the Flash Loader program and select the proper COM port (COM6 in this example) that was identified in the prior step, then click Next.



a.

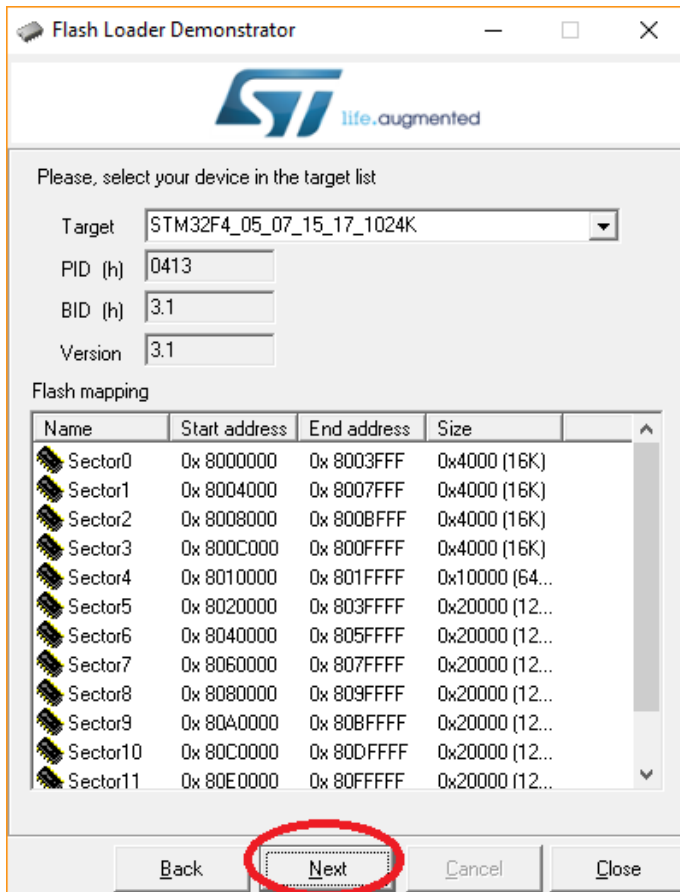
2. Click Next at the target readable screen.



a.

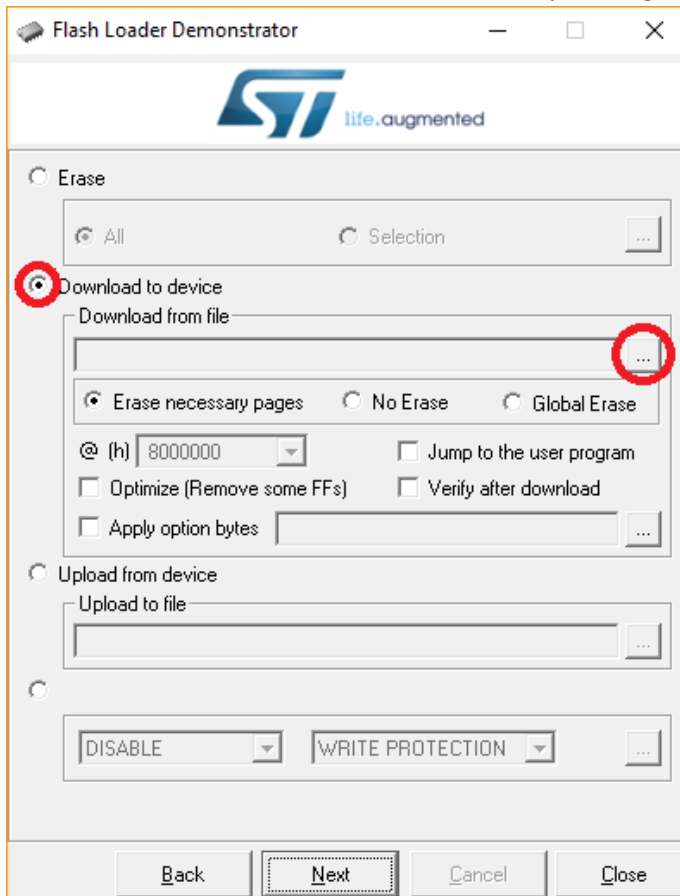
- b. Note: If the device is not readable, ensure the proper COM port is selected, the service key is present and the PTV1000 has been power cycled.

3. Click Next at the select device screen.



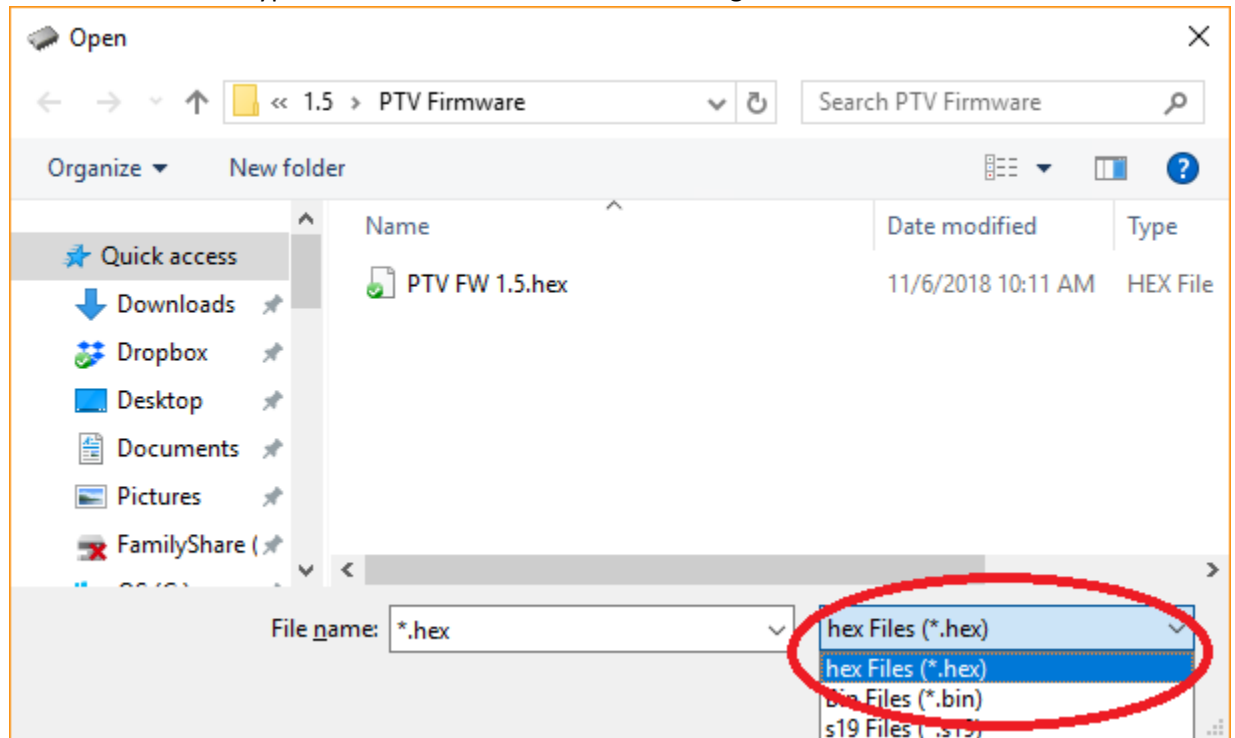
a.

4. Click "Download to device", then select the .hex file by clicking the "..." button under Download from file.

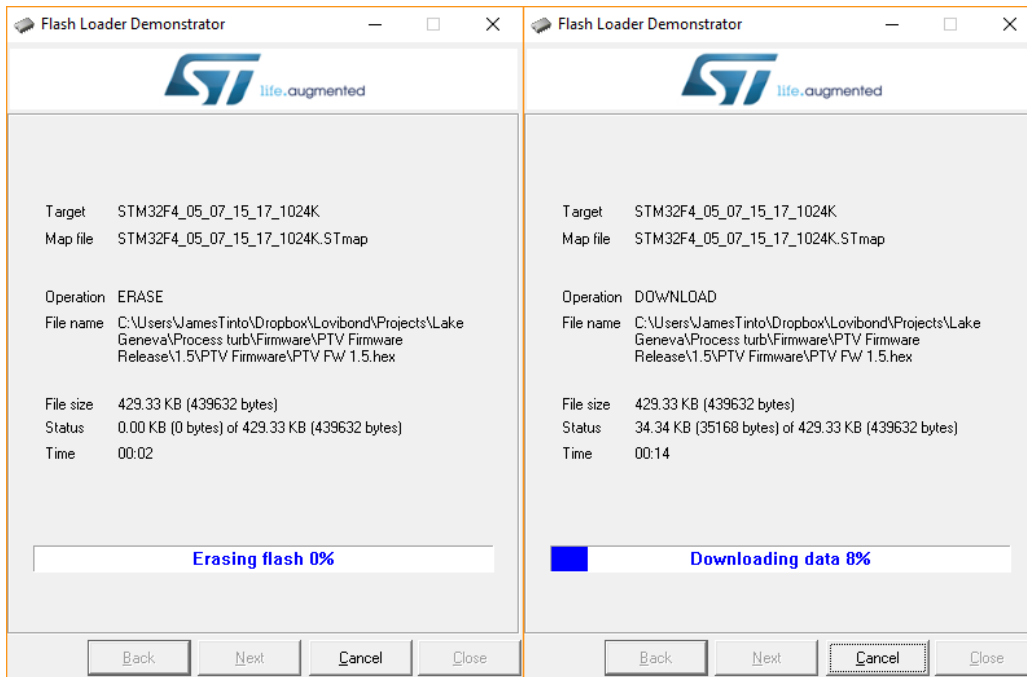


a.

- b. Make sure that the .hex file type is selected in the file selection dialog.



- i.
- c. Click the Next button to begin programming the unit.
- d. **DO NOT remove power from the PTV1000 during the erase or programming operation. It could damage the PTV1000.**



5.



6. The device is now programmed with the new firmware. Click Close to exit the programming utility.
7. Remove the service tool.
8. Turn the PCM 24V power switch off then back on. The display on the PTV1000 will now display normal readings.