Ludlum Lumic Firmware Updater Software Manual

April 2016

Version 1.1 and Higher

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Getting Started

The LMI Lumic Firmware Updater software can be run on a desktop or laptop computer, but not easily on a virtual machine.

Minimum Requirements

- **Supported Operating Systems**: Windows 7 and higher (32-bit and 64-bit versions).
- Computer with Intel or compatible 1GHz or faster processor (2 GHz or faster is recommended).
- Minimum of 256 MB of RAM (1 GB or more is recommended).
- 1 GB of free hard disk space.
- .Net Frameworks 4.5 or Higher

Installation

Run the installer MSI from the installation CD and follow the on-screen prompts to install the LMI Lumic Firmware Updater software.

The default installation location on 64-bit machines is: “C:\Program Files (x86)\Ludlum Measurements, Inc\Ludlum Lumic Firmware Updater”.

On 32-bit machines, the default location is: “C:\Program Files\Ludlum Measurements, Inc\Ludlum Lumic Firmware Updater”.

Introduction

The LMI Lumic Firmware Updater software allows users to update the firmware on certain Ludlum devices.

The LMI Lumic Firmware Updater software has the following features:

- Choose a device to update from a list of compatible devices.
- Select a new firmware file from disk.
- Launch an automated process to install the new device firmware.
- Receive notifications of any errors that occur during the update process.
- Save parameters to a file.
- Load parameters from a file.
- Convert parameters from old firmware to new firmware formats.

Important Notes

1. This software package does not validate firmware files before sending them to the device. **Please ensure that you have saved the correct firmware file for your device to a known location on your computer before using this software.**
2. If your device has datalog capability, please ensure that all data records have been saved to your computer before updating firmware. **Datalog records are erased from the device as part of the firmware update process.**
3. **Do not close the firmware update window while an update is in progress.** Unexpected hardware problems may occur. Follow the steps in the “User Guide” section of this document for “Recover from Interrupted Update” if this occurs.

Screen Explanation

This section gives a general overview on what can be done on each screen and what is shown on each screen.

Note: We recommend following the Lumic firmware update procedure, before preforming any update. Calibration parameters might be lost if procedures are not followed.

Main Window

The main window consists of three components:

1. A device selection list.
2. A file path text box (including a browse button to select a file from disk).
3. An “Update” button.
4. A toolbar on top that handles all file options
    a. Save parameters to a File
    b. Load parameters from a file
    c. Convert parameters to new format
    d. Help
        i. About
        ii. Manual

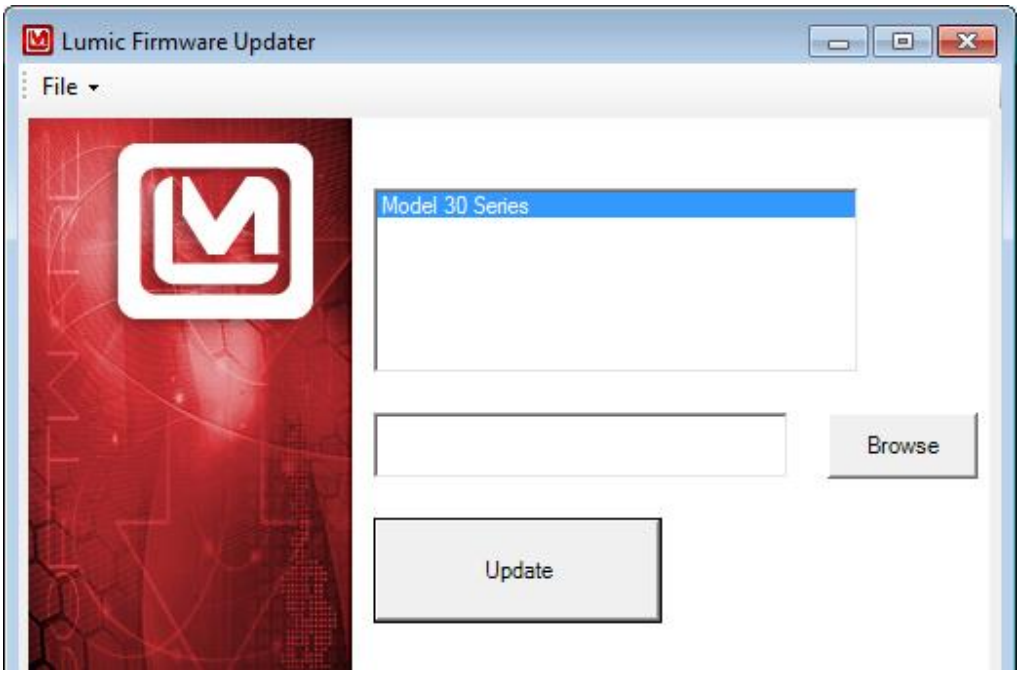


Figure 1: The main window with a single device connected

Before the “Update” button can be clicked, a device must be selected from the list and a path to a firmware file must be entered into the text box. The software does not validate the chosen file, so **please ensure that the correct file path is shown in the text box before clicking “Update.”** Failure to do so may cause the device to become inoperable.

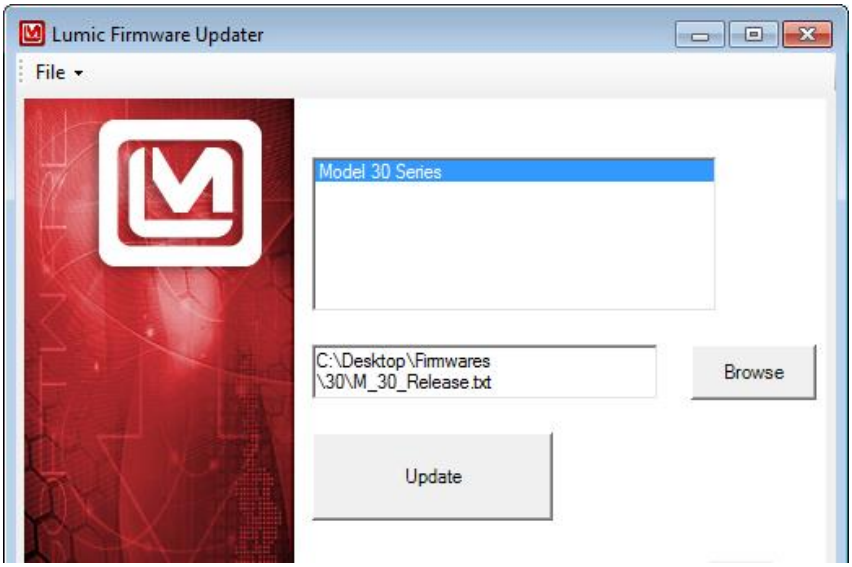


Figure 2: The main window with a file path entered

After clicking the “Update” button, an automatic update window launches.

Automatic Update Window

The automatic updater first places the selected device into a special bootstrap loader mode. While waiting for the device to enter this mode and re-connect to your computer, the automatic update window will display text indicating that no devices are found. (See Figure 3.) While this text is displayed, the window can be closed to cancel the update operation. It may be possible to close this window during a delay between your device entering bootstrap-loader mode and establishing communication with the automatic update software. If this occurs, you may retry the firmware update operation by selecting the “Bootstrap Loader” device in the device list and clicking the “Update” button. You can restore your device to normal condition by removing power from the device and restoring power again.

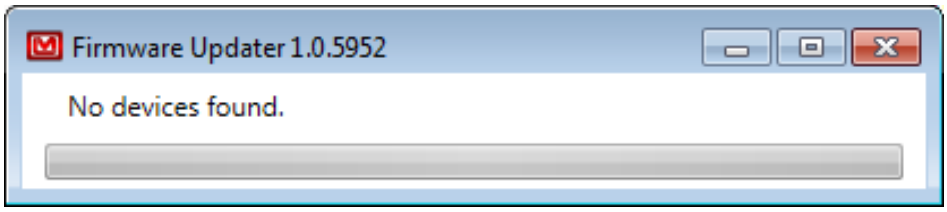


Figure 3: The automatic update window while scanning for bootstrap-loader devices-

Note: "No devices found" is an acceptable response during this process.

Once the automatic update process has begun, you should not close the automatic update window. Wait for the window to close automatically upon successful completion of the update process. During this process, various progress messages will be displayed. A few of these messages deserve explanation:

1. "Mass erase occurred!"
    a. To prevent memory errors, information not stored in "protected memory" is erased during firmware update. **This may include any datalog records on devices that feature a datalog capability.**
2. "Sending RAM BSL [version number]"
    a. The full bootstrap loader program is actually loaded from the software during this step.
    b. This means that future updates to the firmware update software may show different RAM BSL version numbers.
3. "Sending [file]…"
    a. During this step, the firmware file you selected is loaded onto the device.
    b. At this time, the firmware updater does not validate the selected file before sending it to the device**. Please make sure that the correct file is chosen before clicking "Update."**
4. "Verifying memory"
    a. The software ensures that the device accepted the new firmware before initiating a reset.
    b. The window will automatically close shortly after this step is complete.

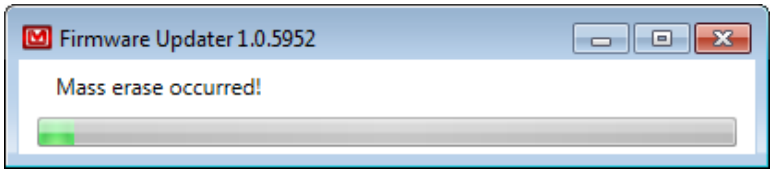


Figure 4: The automatic update window while update is in progress

User Guide

Follow these steps to perform common tasks with the software.

Launch the LMI Lumic Firmware Updater Software

There are at least two common ways to launch the software, depending on your version of Windows.

From the Desktop (Windows 7 or 8)

1. Double-click on the Icon.

From the Start Menu (Windows 7)

1. Open the Start Menu.
2. Click All Programs.
3. Click the folder named “Ludlum Measurements, Inc.”
4. Click the folder named “Ludlum Lumic Firmware Updater.”
5. Click the “Ludlum Lumic Firmware Updater” icon.

From the Start Menu (Windows 8)

1. Open the Start Menu.
2. Type “Ludlum.”
3. Click “Ludlum Lumic Firmware Updater” in the search results area.
    a. For quick access, right click the “Ludlum Lumic Firmware Updater” icon in the search results and click “Pin to Start Menu” from the context menu.

Select a device

1. Launch the LMI Lumic Firmware Updater Software.
2. If you have not already done so, connect the device to the computer.
3. Click the name of the product in the list of connected devices.

Choose a firmware file

1. Select a device.
2. Click the “Browse” button.
3. Select the desired firmware file from the “Open File” dialog.

Important Notes:

1. Instead of steps 2 and 3 above, you may type the absolute path to the desired file in the text box (for example: “C:\Firmware\Latest_firmware_from_LMI.txt”).
2. The software does not validate the chosen file before sending it to the device. **Please make sure that the correct file is chosen.**

Update to a new firmware

1. Choose a firmware file. **Make sure that the correct file is chosen.**
2. Click “Update.”

3. Wait for the automated update window to close. **Do not close the main firmware update window while the automated update window is open.**
4. If the update completed successfully, you should see your device return to the devices list within a few seconds of the automated update window closing.

Recover from interrupted update

1. Disconnect the USB cable from the device.
2. Remove one or more batteries from the device.
3. Reconnect the USB cable to the device.
4. Open the firmware update software.
5. Select the device named “Bootstrap Loader.”
6. Select your firmware file and click “Update.”
7. Make sure the update completes without interruption.
8. Once the device restarts, reinsert any removed batteries.

Save Parameters to a File

This option allows you to save your current Instrument settings to a “csv” (Comma Separated Value) file.

This can later be loaded back onto your instrument by clicking the “Load parameters from a file” menu option.

By clicking on the “Save parameters to a file” option, the software will open up a Dialog window (Figure 5).

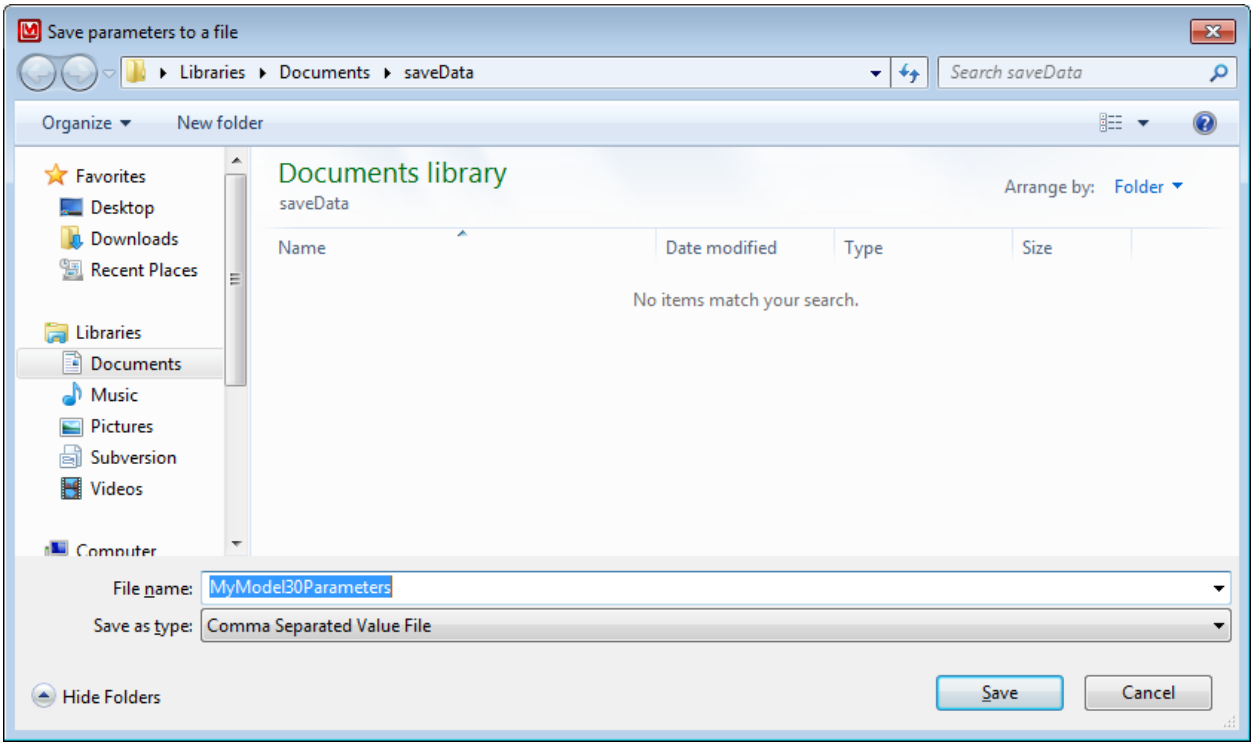


Figure 5: The save dialog window

Once the dialog window is open, you can enter your own name for the file and choose the destination to save the software. Then click the Save button, and your parameters will be saved to the location you chose, or by default to wherever you last saved a file.

Load Parameters from a File

This option allows you to Load Instrument settings from a “csv” (Comma Separated Value) file.

Make sure you only use csv files that have previous instruments’ data contained. Otherwise, this option will not load any parameters.

By clicking on the “Load parameters from a file” option, the software will open up a Dialog window (Figure 6).

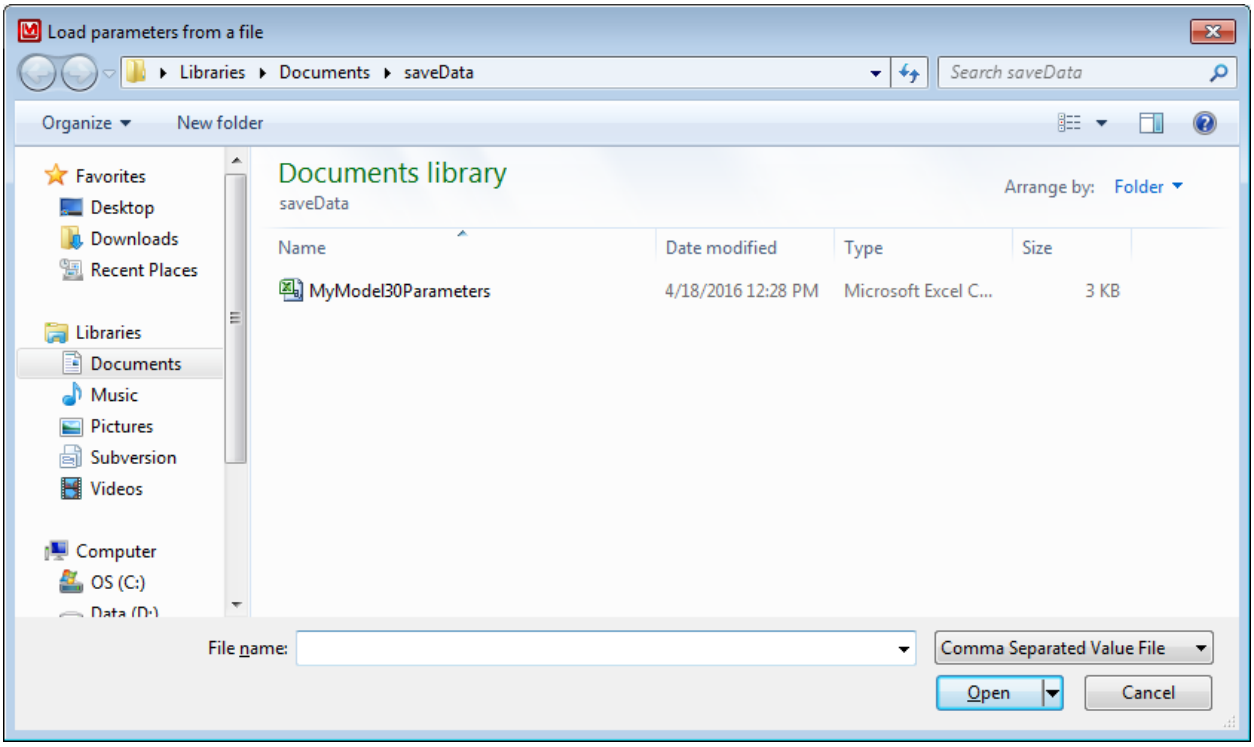


Figure 6: The load dialog window

This will show previously saved csv files. Please select a csv that was made by this program only. Once a csv file is highlighted, click the Open button in the bottom, right corner to load parameters from the file back to the instrument. This will automatically load all data from the saved file into the instrument. If the saved file was edited and some values went beyond bounds, it will reject only the out-of-bound settings.

Note: Any values that are not writeable, but have changed since the file was saved, will cause an error message to appear (firmware number, temperature, and streamable rates).

Convert Parameter File to New Format

Newer firmware changes how our instrument parameters work; this may affect memory locations requiring us to save the parameters before using the firmware updater.

First, use the save option to save the current parameters on the instrument before using this option.

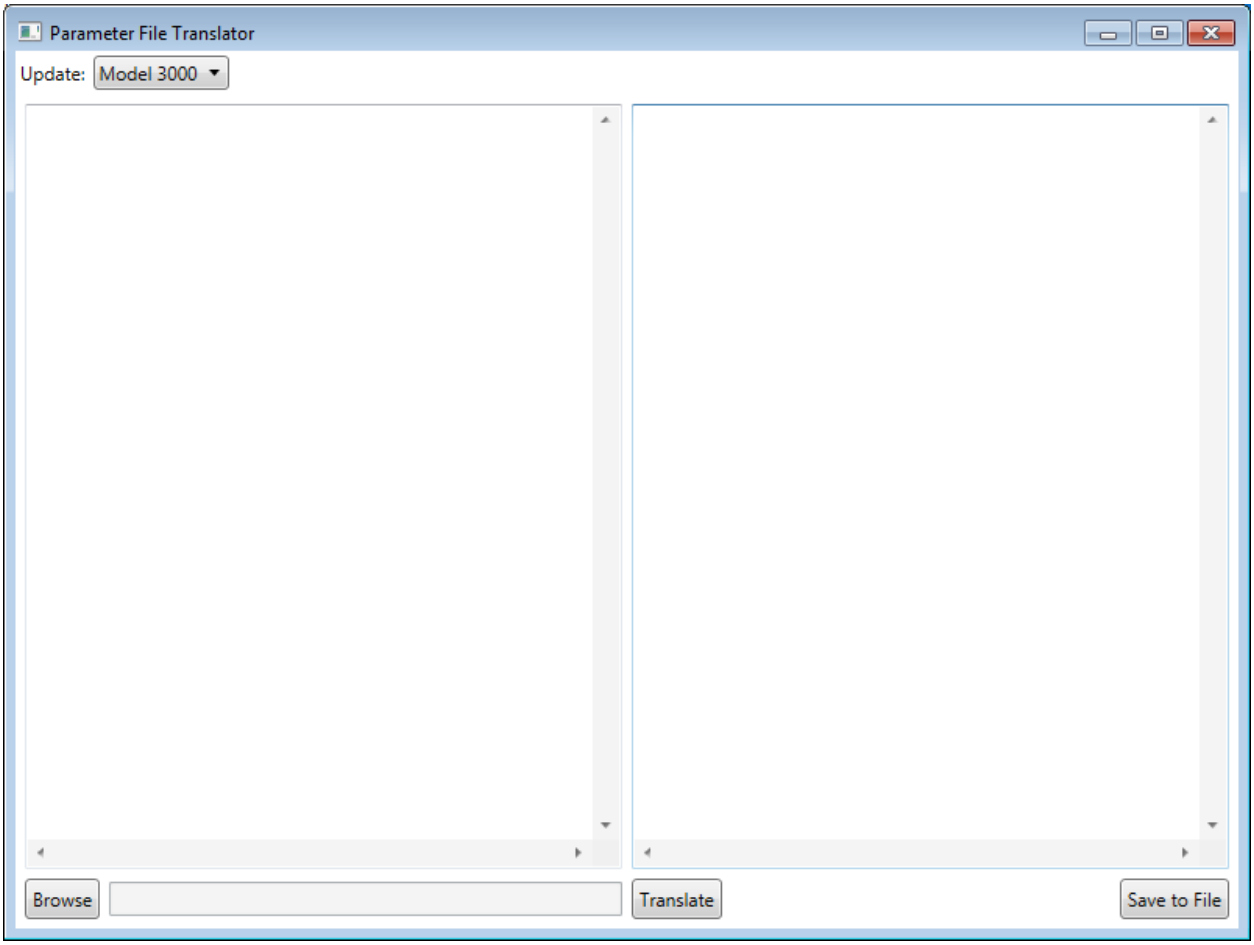


Figure 7: The translator window

First thing that you should notice is the instrument selector at the top, left corner of the screen. Pick the appropriate instrument for your file.

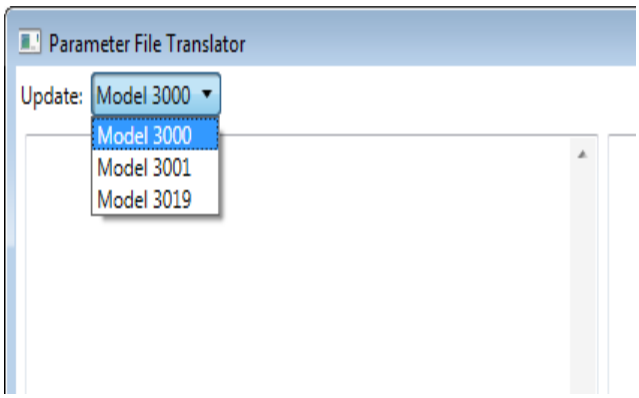


Figure 8: The instrument selector

After the instrument is selected, click the browse button down in the bottom, right corner to select the file you wish to translate.

Once selected, the parameters should load on your screen like such.

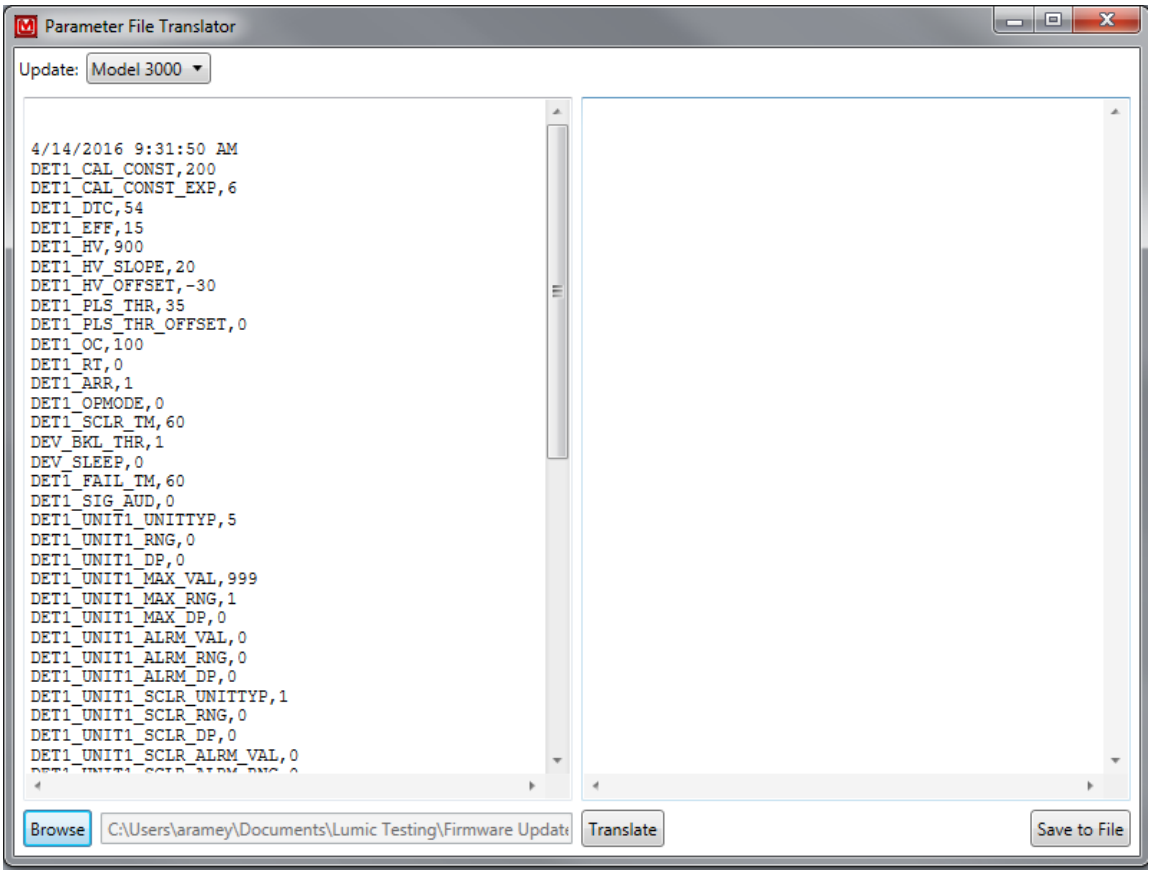


Figure 9: Loaded parameter file

Note: Please note this is with a Model 3000. Other instruments may have different formats for parameters.

Once you hit this stage, at any time you may hit the translate button to translate your parameters to the current new format. Both sides of the screen should now have text (see below).

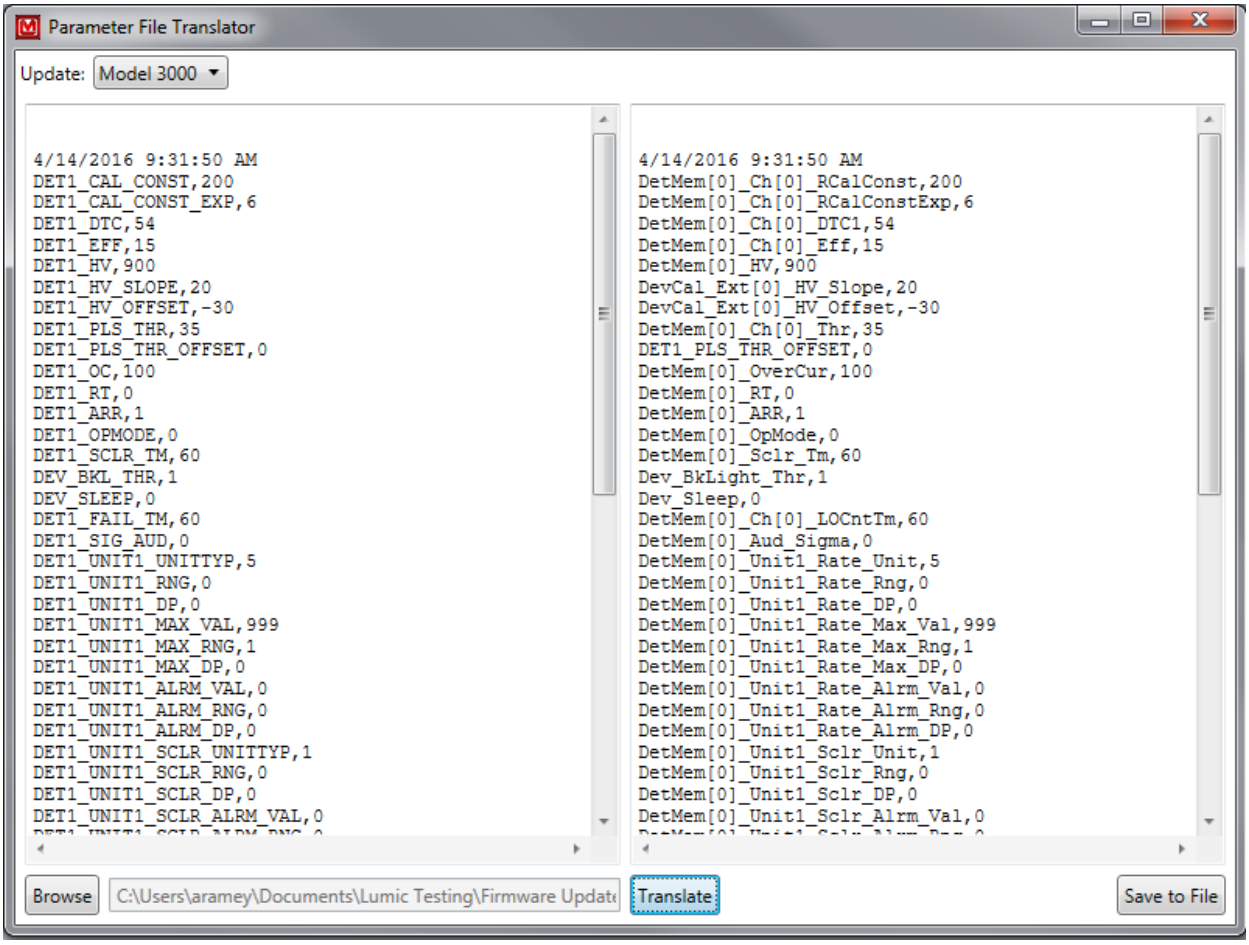


Figure 10: Parameters have been successfully translated to the new format

The final step is to click the “Save to File” button in the right corner of the screen.

Note: We recommend you save the new translated file under a different name than the one you started with.

After this you may close the screen, update your firmware, and use the new file to load your old parameters back to your instrument.

Troubleshooting

Missing .Net Framework

DotNet Framework comes with most standard Windows desktops. However, if for some reason while installing or after installation, you are still missing .NetFramework, please go to MSDN and download 4.5 Framework for your machine.

No devices showing up

1. Check to make sure everything is properly connected.
2. If that is correct, check to see if Microsoft Windows is still installing the drivers for the instrument. This may take a few moments. (If you have multiple new instruments on a daily basis, FAQ question, "Calibration on different devices," may speed this up.
3. Make sure the instrument is on, and if it is, try turning it off and then on again.
4. Change USB cable.
5. Check USB driver. Sometimes while installing the driver you may run into an issue, i.e. power shuts off, instrument unplugged, Windows update, etc. This may cause your driver to become corrupt, and the instrument will no longer show in Lumic. To check for this issue, follow these steps.
    a. Unplug all other instruments. Plug in and turn on the instrument.
    b. Open "Device Manager."
    c. Expand the Human Interface Devices drop-down menu***. If you can see your instrument's family name, i.e. Model 3000, Model 30, under the Human Interface Device Section, then Issue 5 is the cause. If you cannot, please call Ludlum Measurements.***
    d. Right-click on appropriate family name Instrument and select uninstall.
    e. Let Windows uninstall the driver
    f. Disconnect the instrument.
    g. Reconnect the instrument.
    h. Windows should auto-reinstall the Instrument.
    i. When Windows shows the driver has been installed successfully, re-open Lumic and see if menu is still empty.

If none of the above solves your issue, please feel free to call Ludlum Measurements.

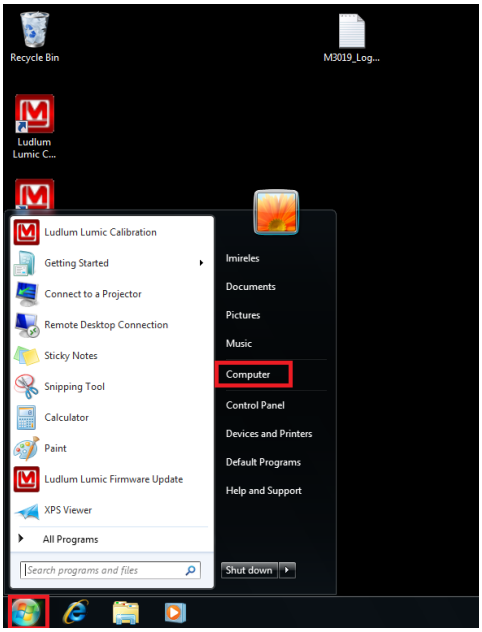
Calibration on different devices – first plug in

If your computer is running Windows 7 or higher, when a new device is connected to your computer, Windows may spend up to 15 minutes searching for the drivers through Windows update. This is

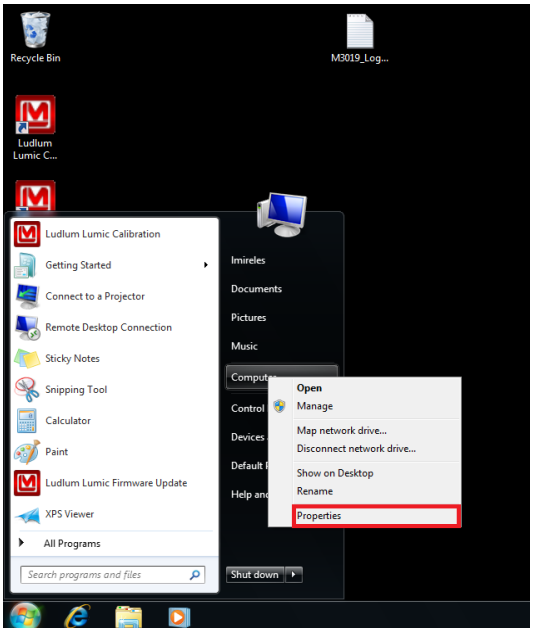
unnecessary and time consuming if you are plugging in different new instruments. In order to avoid this, we need to change some system settings on handling drivers.

Windows 7

- Click Start, right-click "Computer," and choose Properties.

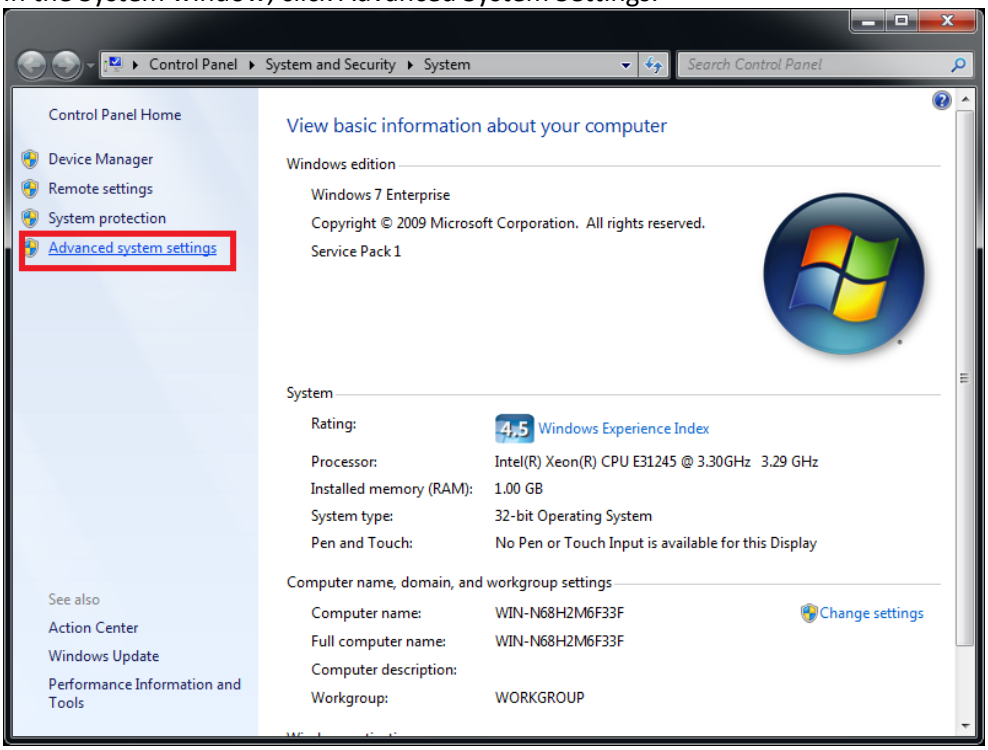


Troubleshooting Figure 2.1: clicking the start button



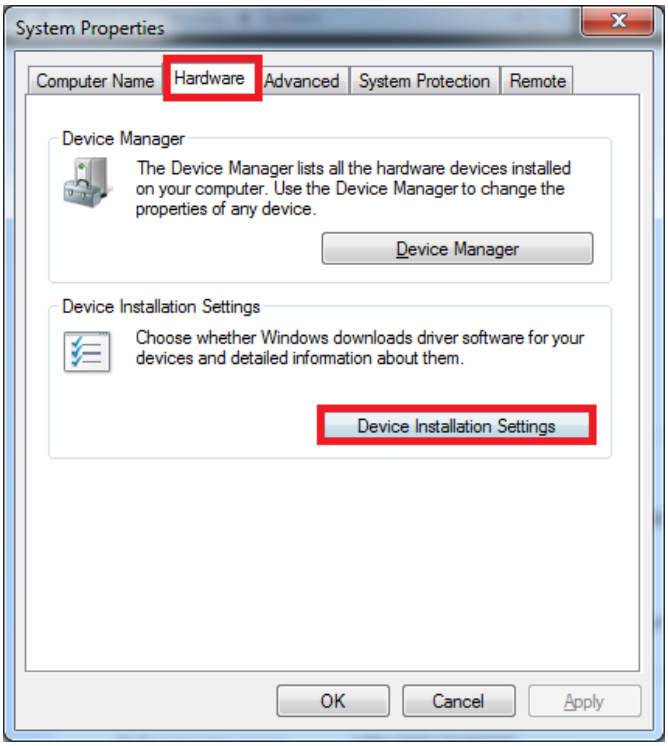
Troubleshooting Figure 2.2: Right click the computer item followed by clicking the properties item

- In the System window, click Advanced System Settings.



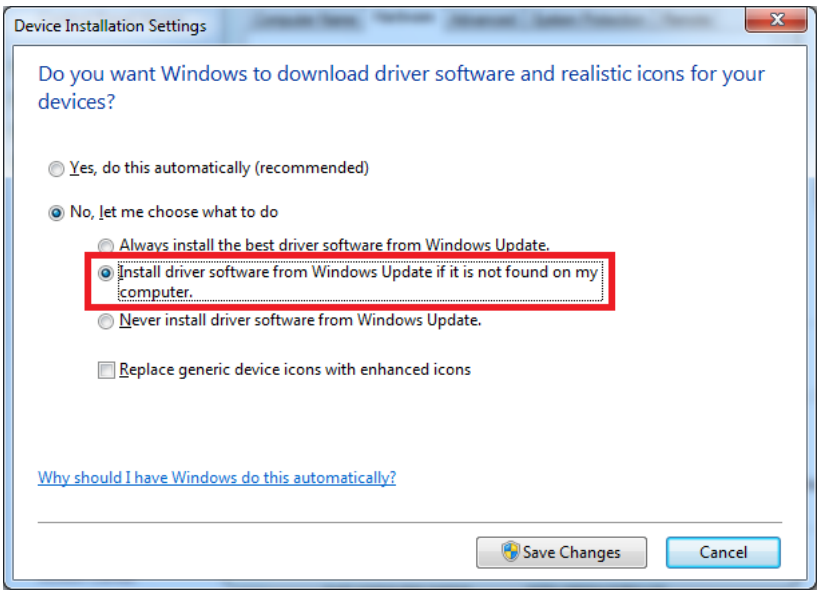
Troubleshooting Figure 2.3:

- On the System Properties dialog box, click the Hardware tab, and then click “Device Installation Settings”



Troubleshooting Figure 2.4:

- Then select “Install driver software from Windows Update if it is not found on my computer.” Or “Never install driver software from Windows Update.”

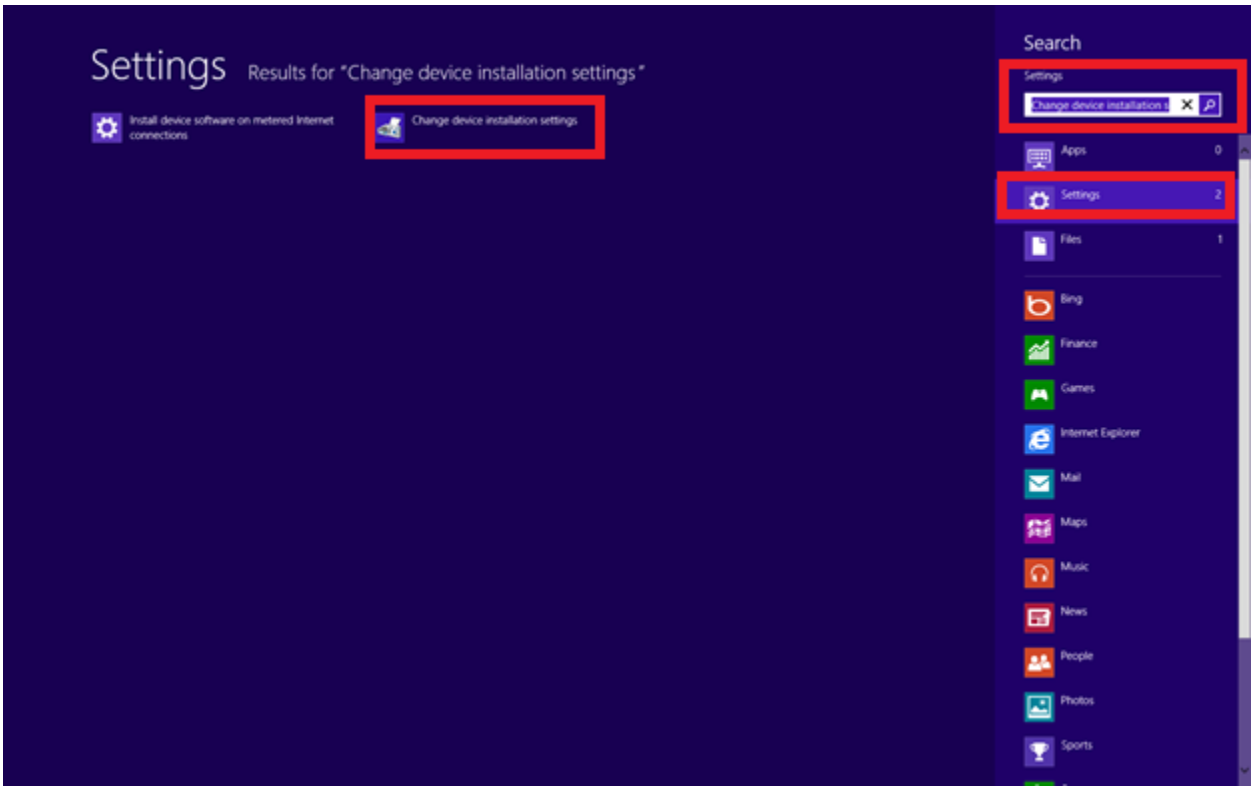


Troubleshooting Figure 2.5:

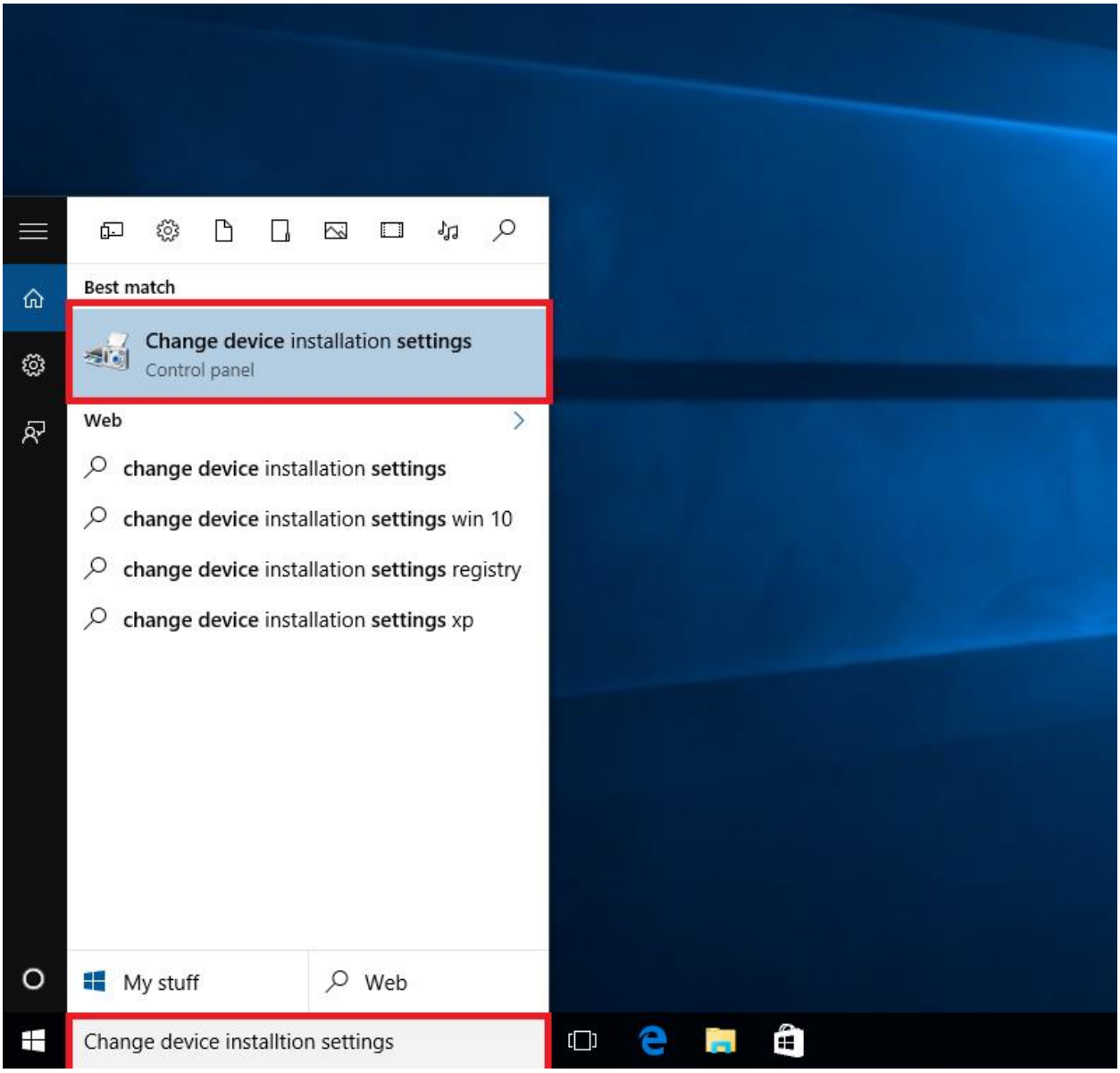
Windows 8 and 10
Unfortunately for Windows 8 (and higher), you only get the choice of using Windows Update always or never, which is even less helpful.

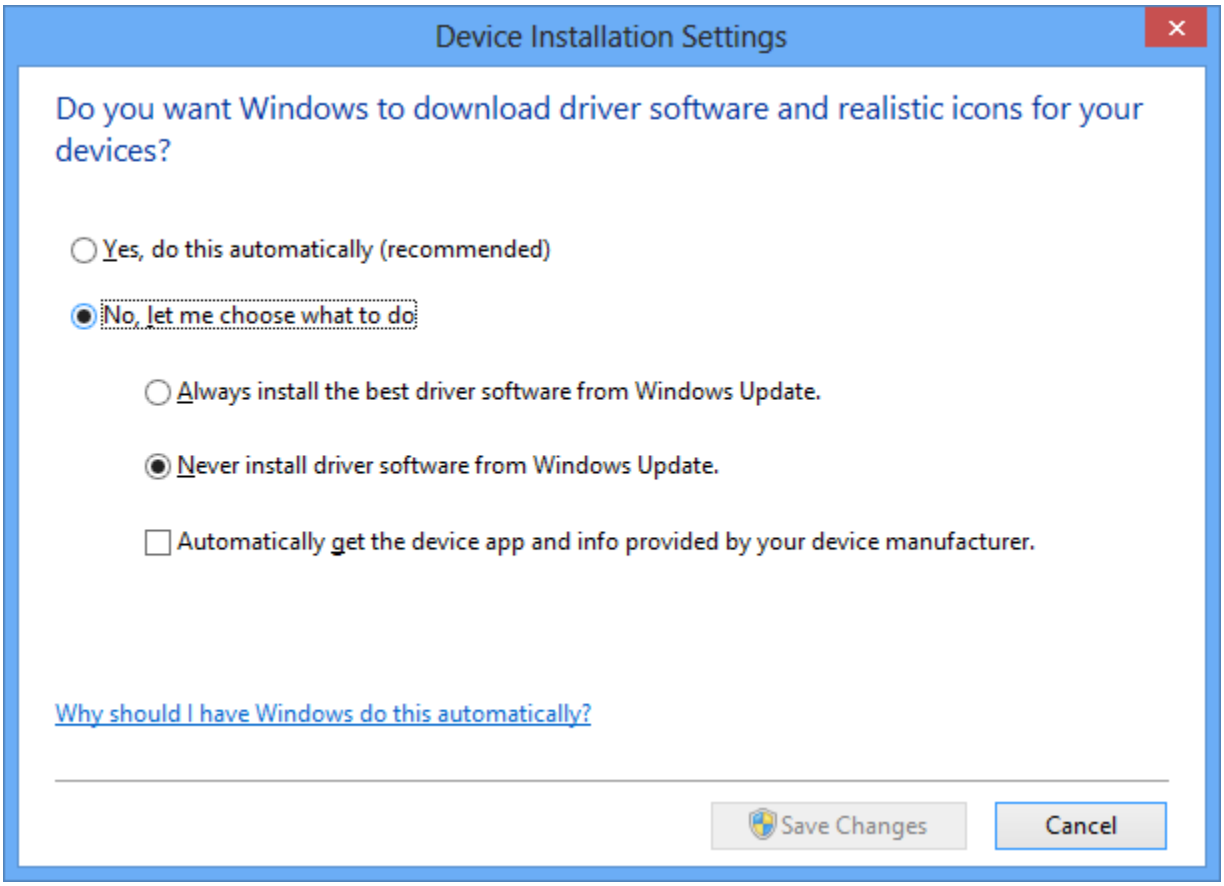
- Search for "Change device installation settings" in the Windows 8 Start menu and select “change device installation settings.”

Windows 8



Windows 10


Best match
Change device installation settings
Control panel
Web
change device installation settings
change device installation settings win 10
change device installation settings registry
change device installation settings xp
My stuff
Web
Change device installtion settings

- In answer to the question "do you want Windows to download driver software" choose "no, let me choose what to do," then select "never" and save changes.

  Note: This is dangerous, some drivers may not install from other companies without this option. This is not recommended.