

COCOVGA

FPGA Update Troubleshooting Tips

As with lots of software installs, there is the possibility that you may run into an issue or two when trying to perform Brendan Donahe's FPGA update for the CoCoVGA. While the instructions for the update will work on most systems, with so many O/S and computer configurations, it is impossible to expect *any* software installation to work properly on each and every configuration.

While installing the USB Blaster Driver for Windows 10 (and perhaps even other versions of Windows), you may encounter several issues with the driver. This document details three issues I encountered during the installation process and my resolution for these issues. This document is basically a recap of those issues and may prove helpful to you should you encounter the same or similar problems. The resolutions were arrived at mostly by trial and error and should not be interpreted as my knowing how to do it on my own. I did a lot of poking around on the internet to find a solution for my situation.

First, my hardware configuration. I have a Color Computer 2 with CoCoVGA hardware installed in it. The hardware was installed by Brendan Donahe himself, and works perfectly. According to Brendan, mine is a KMC1 board configuration. I don't really know what that means, other than it is "special".

I attempted to perform the FPGA Update using a Microsoft Surface Pro 3 running Windows 10 as described on the CoCOVGA web site at:

<http://www.cocovga.com/documentation/updating-fpga/>

This required setting up a free account and downloading the Quartus Prime Programmer Pro Edition software from the altera.com / intel.com web site at:

<http://dl.altera.com/?product=qprogrammer#tabs-4>

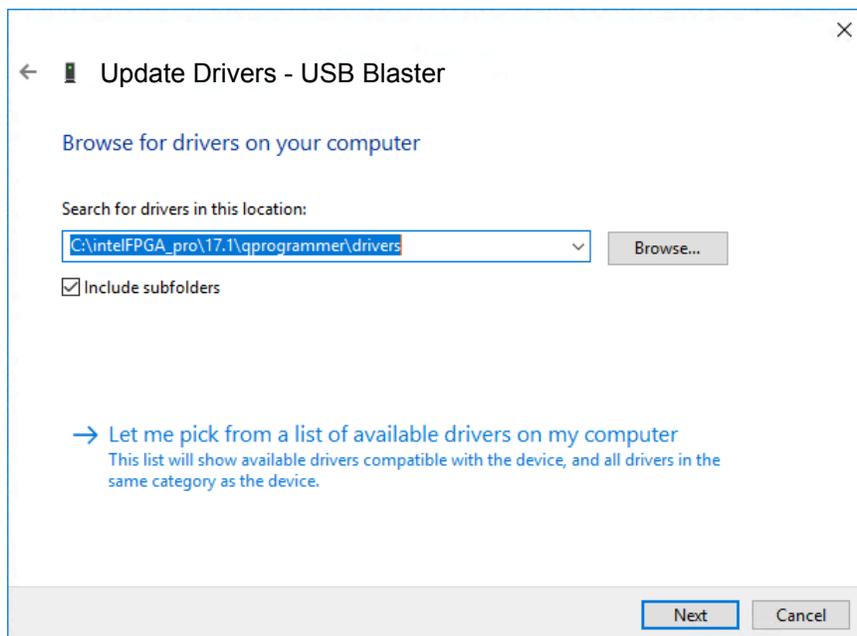
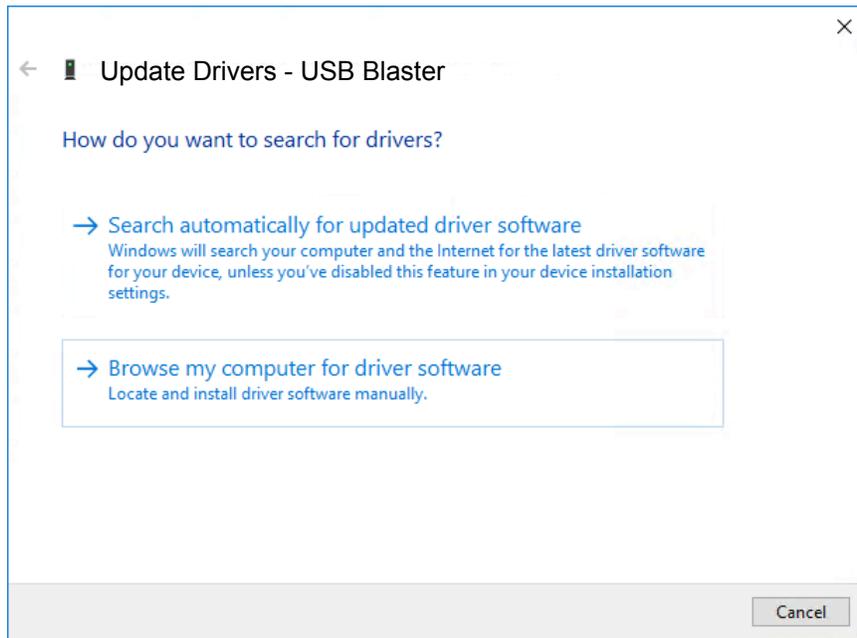
Issue #1 - MSVCP120.DLL file not found

After a successful install of the Quartus Prime Programmer Pro Edition software, version 18.0, the software would not load and generated an error stating that the MSVCP120.DLL and MSVCR120.DLL files were missing. I search my hard drive for copies of these files and found them in several locations, but not in the C:\intelFPGA_pro\18.0\qprogrammer\bin64 folder. I made copies of the files, placed them in the C:\intelFPGA_pro\18.0\qprogrammer\bin64 folder, but still was unable to load the software. After several failed attempts, I figured since the files were not distributed with the 18.0 version of the software that perhaps I could install an older version. I uninstalled version 18.0 and installed version 17.1 from the Altera web site to resolve this issue.

Issue #2 - USB Blaster is installed, but the hash for the file is not present or corrupt

Installing the Quartus Prime Pro Edition software automatically installs the USB Blaster device driver. However, after installing version 17.1 of this software, the USB Blaster did not show up in the hardware list when attempting the Hardware Setup function as described on the CoCoVGA site (Step 7 of the Procedure section).

Several attempts at configuring the Quartus Prime software did not resolve the issue, so I opened Windows 10 Device Manager to inspect the device driver. The driver appeared under Other Devices, but was not working properly. I attempted to update the driver using the “search web” option, but the system indicated that the latest device was installed. I then attempted to update the driver by browsing to the local directory created by the Quartus Prime software:



Issue #2 (continued) - USB Blaster is installed, but the hash for the file is not present or corrupt

Installing the driver from the intelFPGA program folder generated the following error:



The reason for this “hash for the file” error is due to the fact that Windows 10 requires something called “Driver Signature Enforcement”:

Microsoft includes a feature in Windows 10 and Windows 8 called “**driver signature enforcement**” feature. They'll only load **drivers** that have been **signed** by Microsoft. To install less-than-official **drivers**, old unsigned **drivers**, or **drivers** you're developing yourself, you'll need to disable **driver signature enforcement**.

This means Windows 10 only wants to install drivers from sources that it trusts, which are digitally signed drivers:

Driver signing associates a **digital signature** with a **driver** package. Windows device installation uses **digital** signatures to verify the integrity of **driver** packages and to verify the identity of the vendor (software publisher) who provides the driver packages

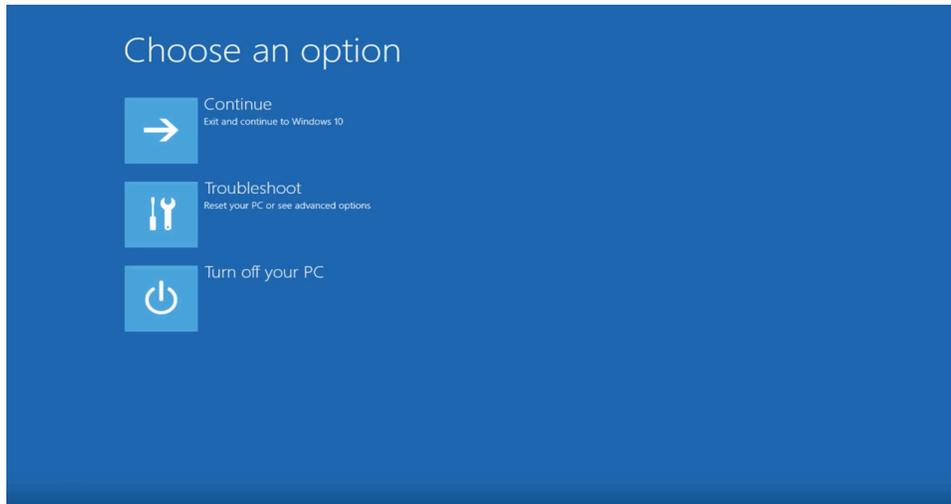
Naturally, Microsoft doesn't give you a message stating that you're trying to install an unsigned driver, they have to confuse you with some cryptic “hash for the file” error message. It took me some Internet research to find this out, but eventually I found a solution.

You need to disable Driver Signature Enforcement on Windows startup. Really!? Geez...

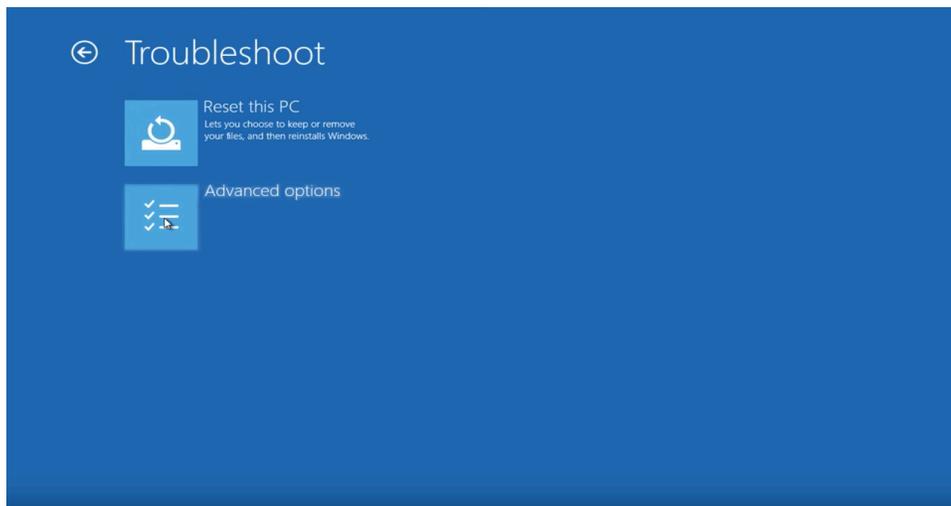
Issue #2 (continued) - USB Blaster is installed, but the hash for the file is not present or corrupt

Okay, here's how you do THAT:

While holding the Shift key, restart Windows 10. When Windows restarts, you should see the following screen:

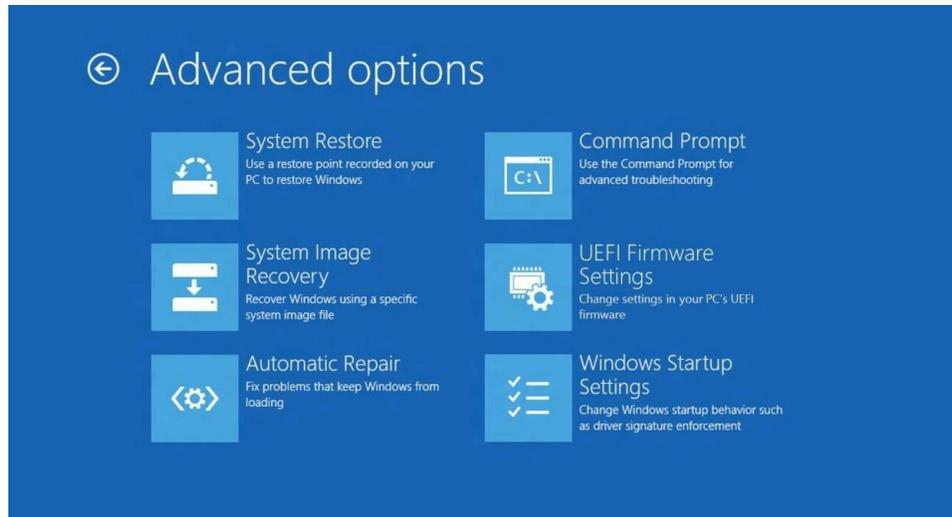


Select Troubleshoot. After selecting Troubleshoot, select Advanced options:

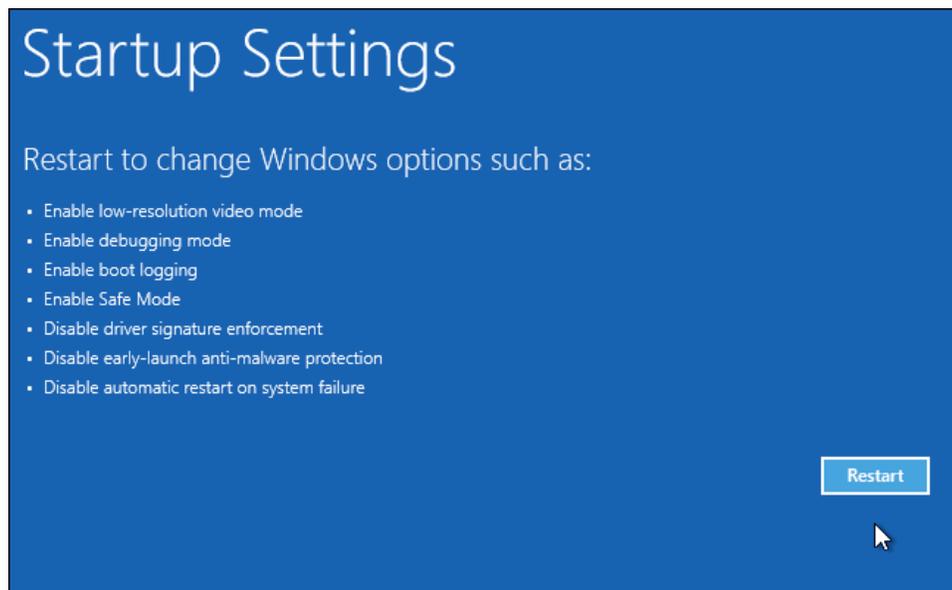


Issue #2 (continued) - USB Blaster is installed, but the hash for the file is not present or corrupt

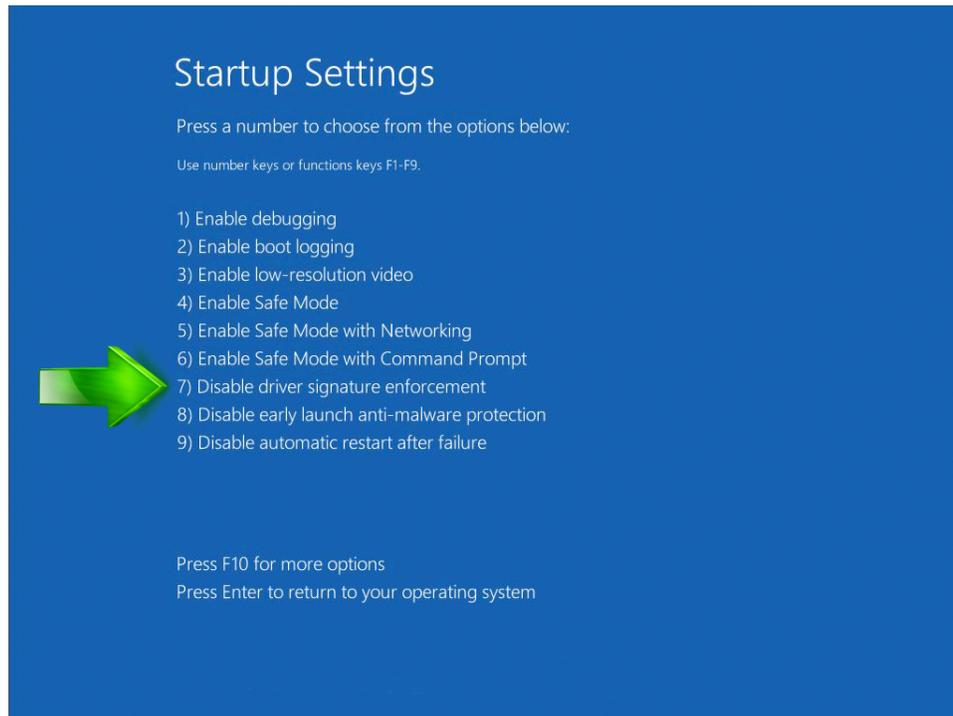
When the Advanced options screen appears, select Windows Startup Settings:



After selecting Windows Startup Settings, click the Restart button (don't worry, you will be able to select an option after Windows restarts):



Once Windows restarts, press the 7 key on your keyboard to select “Disable driver signature enforcement”.



Windows will restart once again, and you will be able to properly install the USB Blaster driver. Note, the next time you restart Windows, driver signature enforcement will be enabled again. In order to protect your system, it is highly recommended that you restart your system after installing the USB Blaster driver.

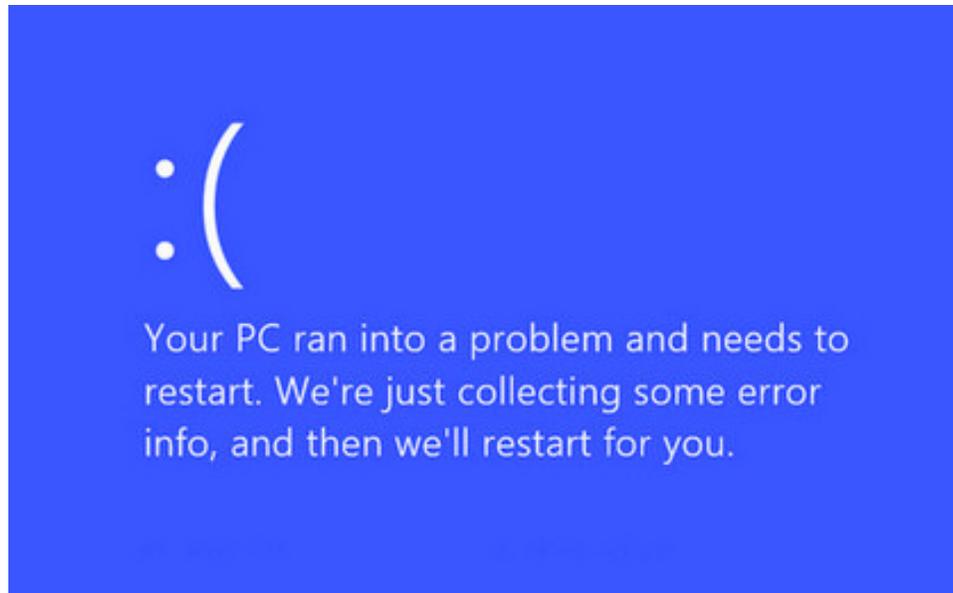
Note : There is a detailed YouTube video on how to disable driver signature enforcement at this link: https://www.youtube.com/watch?v=71YAlw7_-kg

At this point, you may be lucky enough to find the USB Blaster hardware the next time you start the Quartus Prime Programmer Pro Edition. If so, you can ignore Issue #3, you're all set!

I was not so fortunate. Read on.

Issue #3 - While USB Blaster Cable is connected, Windows 10 crashes and restarts

After finally getting the USB Blaster driver installed, I connected my USB Blaster cable, rebooted my Surface Pro and after a short period, the system presented the following message to me:



I rebooted my Surface Pro several times after this, but each time I received the same message shortly after startup. This was a bit concerning as I initially thought I had corrupted my Windows 10 installation. Fortunately, that was not the case. After disconnecting the USB Blaster, Windows 10 started up properly.

After a little more Internet research, I found the following link that addresses this issue:

https://www.altera.com/support/support-resources/knowledge-base/solutions/rd05162012_935.html

It appears that the USB Blaster device driver that is distributed with the Quartus Prime Programmer Pro Edition works on some systems, but not on others. I was able to download an updated USB Blaster device driver from the link above, reinstall the driver and at that point the Quartus Prime Programmer Pro Edition software recognized the USB Blaster hardware.

Please see the following page on how to uninstall the original USB Blaster driver and install the updated version.

Note: In order to properly install the new USB Blaster driver, you must COMPLETELY uninstall the original USB Blaster driver, selecting the option to “Delete the driver software for this device.”



This presents a conundrum as the original driver will not appear in the Windows 10 Device Manager unless the USB Blaster is connected to your system, but connecting the USB Blaster causes the system to crash.

Can you remove the device driver without plugging in the USB Blaster? I don't think you can.

Can you connect the USB Blaster and start Windows 10 without a system crash? YES! Just connect your USB Blaster and start Windows 10 in SAFE MODE. You do this the same way you disable driver signature enforcement (see Page 4).

While holding the Shift key, restart Windows 10. When Windows restarts, selecting Windows Startup Settings and click the Restart button. This time, when Windows restarts, select option 4, Enable Safe Mode. You will then be able to uninstall the USB Blaster driver.

Yikes, what an adventure!