Intel® SSD Data Center Family for PCIe NVMe Microsoft Windows Drivers

Installation Guide

December 2020

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Ordering Information

Contact your local Intel sale representative for ordering information.

Revision History

Revision Number	Description	Revision Date
001	Initial release.	June 2014
002	Updated system requirements.	December 2014
003	Updated Section 3.3. "Driver Installation under Linux"	January 2015
004	Updated Windows Installation Images and removed product specific text	December 2020

Contents

1 Overview

This guide describes how to install the Intel SSD Data Center Family for PCIe Windows drivers and verify it is installed correctly.

1.1 System Requirements

- System with an available PCI Express (PCIe) Gen 3.0 x8 or x16 slot or U.2 (SFF-8639) connector backplane
- Supported Operating Systems:
  - Microsoft Windows Server 2012 R2, 2012, 2016, 2019
  - Microsoft Windows 8, Windows 8.1, Windows 10 (32bit/64bit)

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2 Driver Installation

Installation requires two main steps, but make sure to back up your data before you begin:

- Install the SSD Device in the System
- Install the Device Driver

2.1 SSD Installation

1. Unpack the SSD in a static free environment. Inspect the drive for shipment damage. If any damage is detected, contact your supplier.

IMPORTANT! Back up your data before changing the system's configuration.

2. Turn off the computer and remove the cover from the chassis.
3. Locate an empty PCIe Gen 3.0 x8 or x16 slot. Ensure that the slot is electrically x4 or higher. This can be confirmed by reading the slot description on the motherboard OR by checking the supporting documentation of the motherboard. (**Note**: The drive may show degraded performance if plugged into a slot that is not PCIe Gen 3.0.) Remove the blank bracket panel on the back of the system that aligns with the empty PCIe slot. Save the bracket screw.
4. While using a 2.5-inch form factor drive, find the U.2 (SFF-8639) connector slot on the platform that is capable of supporting this form factor.
5. Record the serial number of the SSD and PCIe slot number where the SSD will be installed.
   This information can be used at a later time for identifying drives from the console
6. Secure the bracket to the system's chassis by installing the bracket screw.
7. Replace the cover and power up the system.

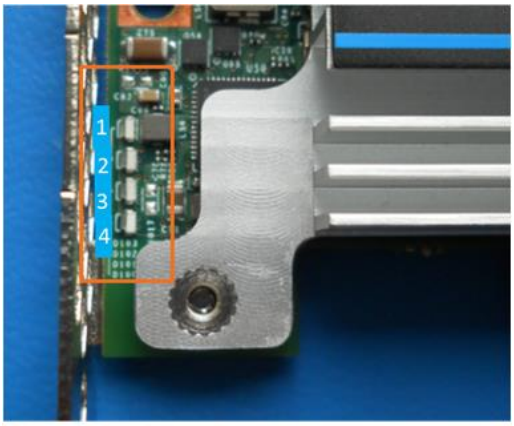
The SSD installation is complete. The next step is to install the device driver.

2.2 Check Device LED

The standard PCIe Add-in Card (AIC) has LED indicators next to the bracket.

1. When booting the system check the LED to verify the health of the drive:

   - If the drive's Green and Amber LED are lit, it is healthy.
   - If the RED LED is lit (flashing or steady), the drive is in a failed state thus will not be seen in the OS, please contact an Intel Representative.
   - If during workload the Yellow LED is lit, it indicates that the drive has been used beyond its rated specification (for example, over-heating, wearing out NAND, etc.)



From top to bottom:
LED1. Activity (Amber)
LED 2. Failed (red)
LED 3. Defect (yellow)
LED 4. Healthy (green)

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3 Driver Installation

To install the Data Center NVMe Microsoft Windows Driver for Intel® SSDs, follow the instructions in this section:

- Download the latest driver for supported devices here:
  Datacenter NVMe Microsoft Windows Drivers for Intel® SSDs

3.1 Microsoft Windows Driver Installation

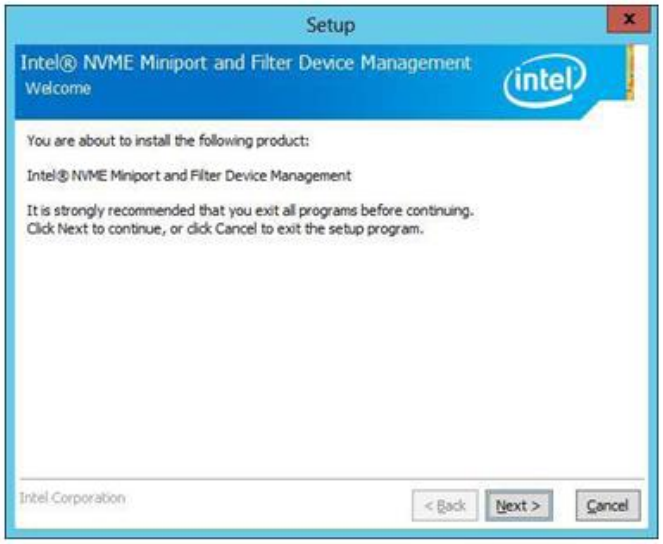
The driver can be installed in either of the following two ways:

- Using the **Setup_NVME.exe** installer, the automated method that will install the driver files for you.
- Using the **Have-Disk** command set up requires the user to go into the system's **Device Manager** and install the driver for the new PCIe device.

3.1.1 Driver Installation – Setup NVMe.exe

1. Double-click the installer ICON in the directory.

Once launched, the **Setup** screen will appear.

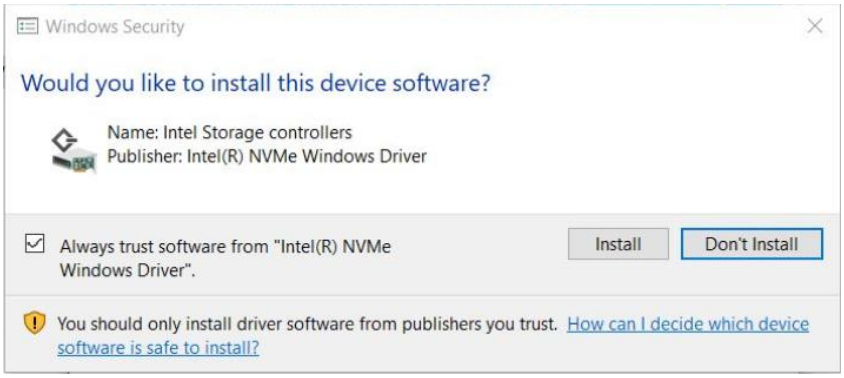


2. Click **Next** to continue.

3. At the **License Agreement**, review and accept the terms.

4. At the **Confirm Screen**, click **Next** to continue.

5. At the **Windows Security** screen, click **Install** to start the installation process



6. At the **Completion** screen, click **Finish** to close the installer program. A reboot may be necessary in some cases.

At this point you can assign the drive a letter from **Disk Management if this was not already done**.

3.1.2 Driver Installation – Have Disk

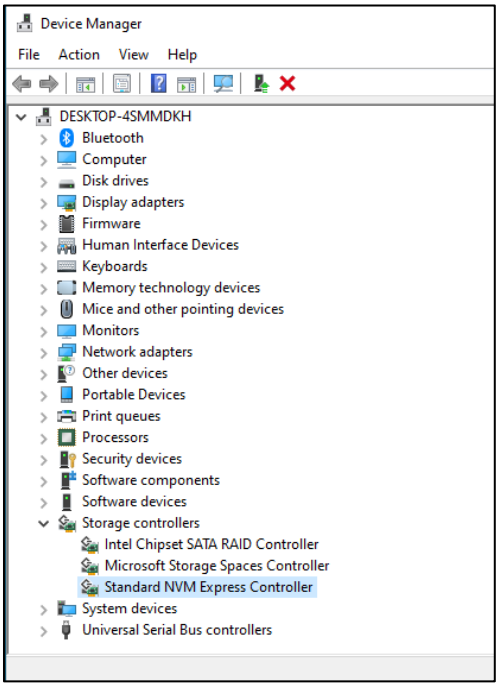
1. Log into Microsoft Windows and initiate **Device Manager**:

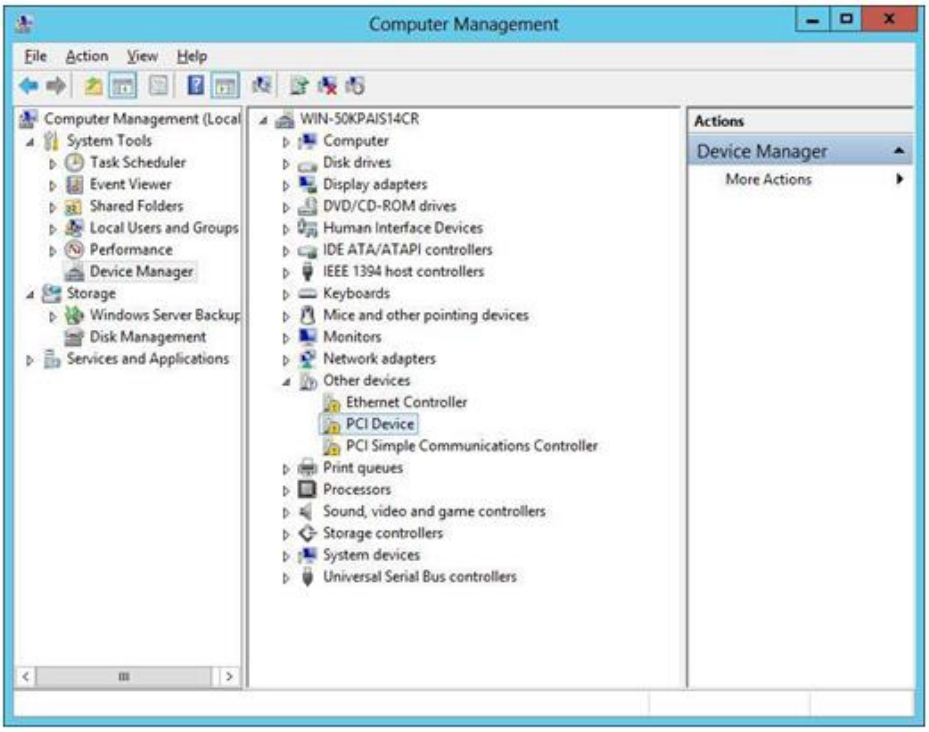
   Computer Management > Device Manager

   The **Device Manager** displays a list of the hardware in the system.

2. First you have to locate where the drive is listed in **Device Manager**

   a. If there is a native NVMe driver installed from the OS and the drive is already detected, you will want to check in Device Manager under the **Storage Controllers** section. Look for the Standard NVM Express Controller.



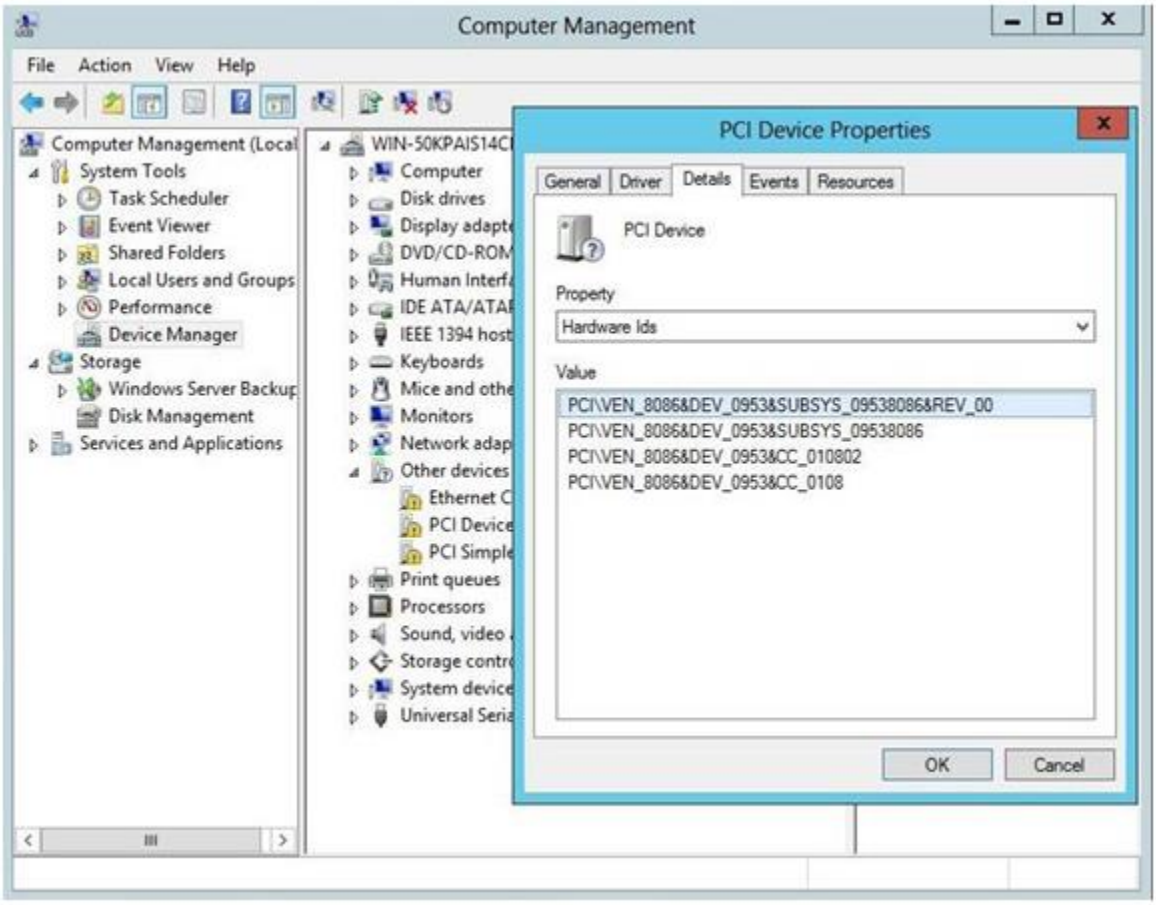


b. Right-click on the PCI Device and select **Properties**.

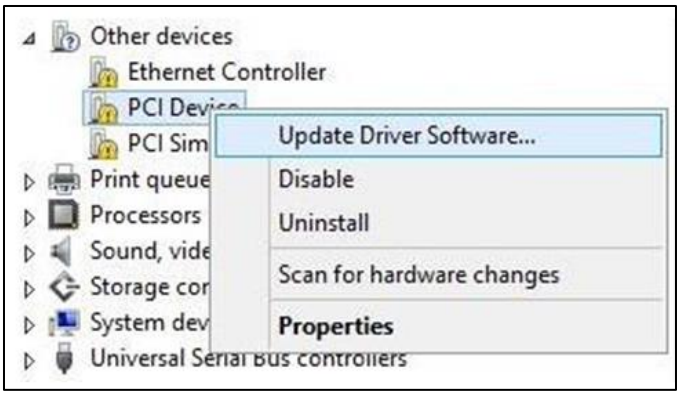
c. Select the **Details** tab.

d. Select the **Property** drop-down box to view the **Hardware Ids.**

Device should show **VEN ID = 8086** and **DEV = 0953** as in the following screenshot:

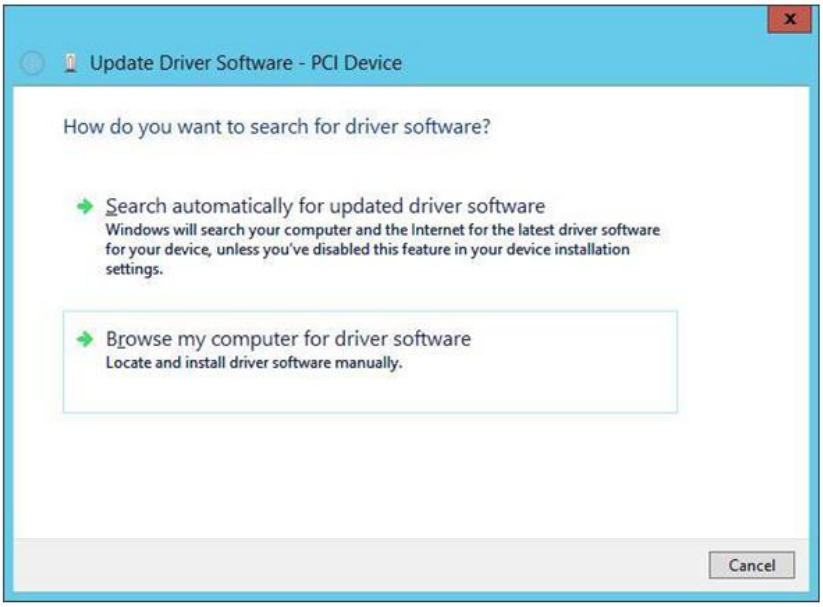


3. Once the correct device is known, right-click to select the device and select **Update Driver Software**, as in the following screenshot:



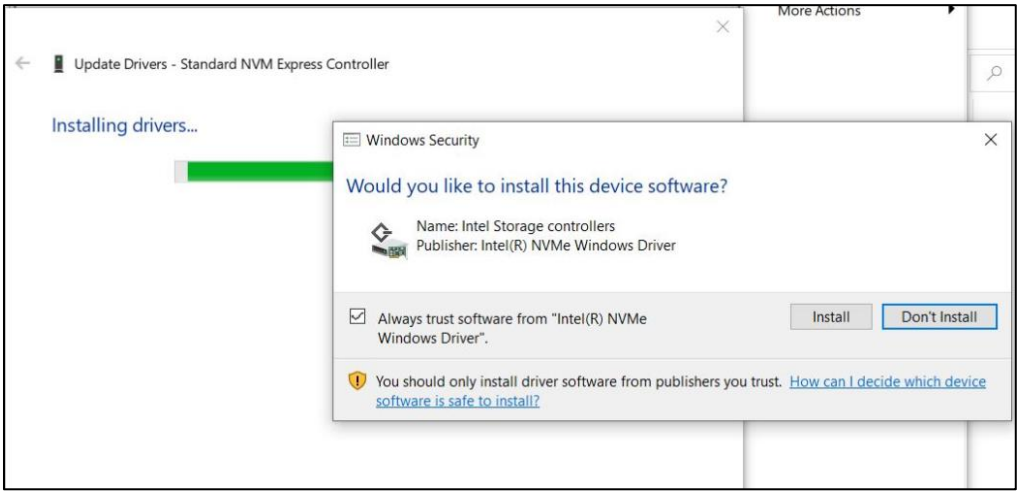
From the **Update Driver Software** window, you will direct the system to the appropriate location.

4. Select **Browse my computer for driver software and select 'IaNVMe' driver** to begin installation.



Installation will begin and the **Windows Security** confirmation will be displayed.

5. Click **Install**.



3.2 Basic Functionality Check

- Open **Disk Management** on Windows and select your drive from the list. From this point, you can start using the drive.

- Contact your Intel representative to learn more about the CLI version of the Intel® Memory and Storage Tool for basic functionality checks, or download here and reference the User Guide: https://downloadcenter.intel.com/download/29721?v=t

  Basic Command for functionality checks:

  - To show all Data Center Intel SSDs, use:

    ```
    Intelmas  show  –intelssd
    ```

  - To check health status, monitor the ErrorString value shown on screen or Byte 3076 to 3095 under identify information.

    To check PCIe link speed, check byte 3096. Make sure the device is trained at Gen3 before doing any performance measurement for optimal results.

  - To show identify controller and namespace info, use:

    ```
    Intelmas.exe show –identify -intelssd X -nvmecontroller
    ```

  - To check SMART information, use:

    ```
    Intelmas.exe show -smart
    ```

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