



Dell
Consumer Client
Re-Image “How-To” Guide XPS
Notebook

Revision 1.6

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Contents

1	Overview.....	3
2	“How-To”	3
2.1	XPS New Features & Image Impact	4
2.2	Important Information	
2.2.1	Updating the Dell Thunderbolt Dock TB15 driver set.....	5
2.2.2	Updating the Graphics drivers for your computer.....	6
2.3	Latest Drivers / Applications and Utilities.....	7
2.4	Installation Sequence	8
2.5	BIOS.....	10
2.6	Recommended Drivers / Applications Installation Order.....	11
	Appendix.....	29
	Appendix A-.NET Framework requirements.....	20
	Appendix B- Dell Dock WD15 requirements.....	21
	Appendix C-Dell Thunderbolt Dock TB15 requirements.....	23

1 Overview

The purpose of this document is to detail the required steps for reimaging XPS notebooks.

Dell XPS notebooks systems ship with Microsoft operating systems (see Chapter 2 for detail). These images include the Dell recommended software stack and settings, drivers, and applications which are tested and validated with the system.

Drivers and applications must be installed on Dell XPS systems in a prescribed order to ensure optimal performance. Failure to install drivers and applications as detailed in this document may result in undesirable performance.

Dell provides drivers and applications that are not included in Microsoft Operating Systems. These drivers are required to enable the new technologies and features of Dell XPS products, including the 128GB Solid State Drive or 256GB PCIe Solid State Drive or 512GB PCIe Solid State Drive (See appendix –B). Reinstalled images should be built from a clean hand installed OS load and following the steps in this guide. Dell does not recommend starting from an image built on previous generations of products or other computer systems.

Dell recommends ensuring BIOS settings (including SATA configurations modes) are correctly set and using the latest device drivers and applications when imaging their systems.

This “How-To” guide applies to the following XPS systems:

2 “How-To”

Supported Operating Systems

The following Microsoft operating systems have been validated for use on notebook computers:

- Windows 10 64-Bit: Validated on XPS-13-9350

2.1 XPS New Features & Image Impact

Dell XPS systems feature new hardware technologies which require a new software stack, drivers, and / or applications. These products are not compatible with previous images built or installed on none XPS Dell products. Images between different XPS models are also not compatible

Among these new hardware and technologies are:

2.1.1 New Features Offered on XPS systems, All Generations:

Note: Not all features are available on all systems

- New BIOS architecture – XPS
- Chipset
 - Intel Core i3 i5& i7 Dual Core CPUs that include updated integrated graphics
- Thunderbolt™ 3 supports
- Solid State Drive / PCIe Solid State Drive
- Memory Slots
- Intel RST (Rapid Start Technology)
- Graphics controller (Intel)
- Wireless

LAN

- Bluetooth
- Webcam
- USB 3.0/3.1
- Precision Touchpad
- Touch Screen
- WiDi display

2.2 Important Information

You must update your computer’s BIOS and the Dell Docking Station drivers to the latest versions available at www.dell.com/support before using the docking station. Older BIOS versions and drivers could result in the docking station not being recognized by your computer or not functioning optimally.

NOTE: Please see Display Resolution Table for more information on maximum resolution capacity.

2.2.1 Dell Dock (WD15) and Dell Thunderbolt Dock (TB15) Driver Set

– Applies to 7th generation Latitude E-Family & Mobile Precision only

To fully support new generation Dell Dock and Dell Thunderbolt Dock, DELL highly recommend installing the following BIOS/Drivers step by step on 64 bit Windows OS

1. Flash the latest **BIOS** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**BIOS**” section. Restart system before next step.
2. Install **Intel(R) Thunderbolt Controller Driver** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Chipset**” section. Restart system before next step.
3. Install **Intel(R) Thunderbolt 3 Firmware Update** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
4. For **Dell Thunderbolt Dock** only, install **ASMedia USB 3.0 Extended Host Controller Driver** for Dell Thunderbolt Dock available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
5. Install **Realtek USB GBE Ethernet Controller Driver** for Dell Thunderbolt Dock and Dell Dock available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
6. Install **Realtek USB Audio Driver** for Dell Wireless Dock, Dell Thunderbolt Dock, and Dell Dock available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
7. For Windows 8.1 and Windows 10 OS only, install Patch for the USB audio/mouse issue on Dell Thunderbolt Dock and Dell Dock available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system.

NOTE: The Dock is not required to be connected to system during driver installation.

Rebooting the system after connecting the dock the first time is recommended.

NOTE: Graphic driver should be also installed by following section 2.6.5

2.2.2 Updating the Graphics drivers for your computer

The Microsoft Windows operating systems include the VGA graphics drivers only. Therefore, for optimum graphics performance, it is recommended that Dell graphics drivers applicable for your computer be installed from dell.com/support under the “Video” section.

NOTE:

1. For nVidia Discrete Graphics solutions on the Latitude E-Family and Mobile Precision 3rd Generation and above computers:
 - a. First, install the Intel Media Adapter Graphics Driver applicable to your computer.
 - b. Second, install the nVidia Discrete Graphics Driver applicable to your computer.
2. For AMD Discrete Graphics solutions on the Latitude E-Family and Mobile Precision 5th Generation and above computers:
 - a. First, install the Intel Media Adapter Graphics driver applicable to your computer.
 - b. Second, install the AMD Discrete Graphics driver applicable to your computer.

NOTE: Both 2nd and 3rd Generation Intel Core CPUs are available on the 4th Generation Latitude E-Family and Mobile Precision computers. Please re-install the graphics drivers when you exchange a 2nd Generation CPU for a 3rd Generation CPU, and vice versa.

NOTE: Both 3rd and 4th Generation Intel Core CPUs are available on the 5th Generation Latitude E-Family and Mobile Precision computers, except for the Dell Latitude 3440/3540 computers. Please re-install the graphics drivers when you exchange a 3rd Generation CPU for a 4th Generation CPU, and vice versa.

2.3 Latest Drivers / Applications and Utilities

Dell recommends always obtaining the latest and most updated BIOS, drivers, firmware, and applications. Dell validated and tested drivers and applications are located on Dell’s support web site <http://support.dell.com/>

- Enter the Service Tag or select the product model and the model number
- Select Operating System (64-Bit version must be selected)
- Choose drivers and downloads

Note:Dell recommends that better update latest BIOS,Intel Thunderbolt Controller Driver,Intel(R) Thunderbolt 3 firmware utility first.

Customer can download them under BIOS/Chipset option of below link:

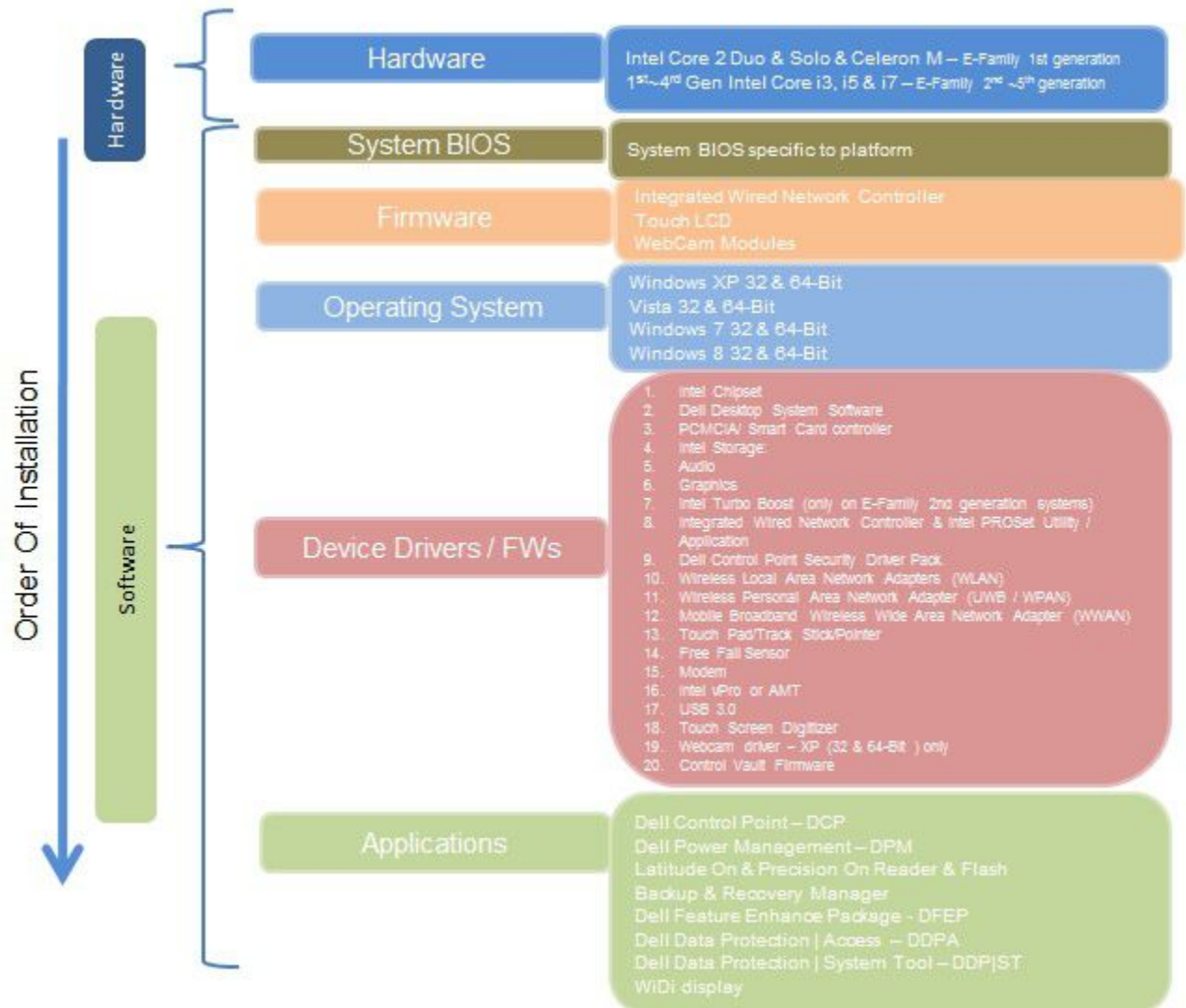
<http://www.dell.com/support/home/us/en/19/product-support/product/xps-13-9350-laptop/drivers>

2.4 Installation Sequence

The list below is a general overview of drivers and applications that must be installed on Dell XPS systems in a prescribed order to ensure optimal performance. Actual system configurations may vary.

Note: Dell Alienware, Inspiron, Studio, XPS and Vostro Laptops may have different installation sequence. Please refer to Dell Support Website for these Laptops.

2.4.1 Installation Sequence Overview



2.4.2 Installation Sequence & Features at a Glance:

2.4.2.1 BIOS, Drivers and Firmware:

- BIOS
- Intel Chipset - Helps Windows control system board components and controllers.
- Dell Desktop System Software - A compilation of critical Microsoft QFEs updates
- Media Memory Card / SmartCard controller - Enables and enhances the Media Memory / SmartCard controller
- Intel Storage:
 - 1. Intel Rapid Storage Technology
- Audio - Enables and enhances the audio controller
- Graphics:
 - 1. Enhances and optimizes video performance
 - 2. Enables & provides additional functionality that are not included in MS native VGA driver
 - User customizable Power Management features
 - Portability & behavioral profiles
 - Multiple monitor support
- Integrated Wired Network Controller & Intel PROSet Utility / Application - Enables and enhances the network controller
- Networking & Communication
 - 1. Wireless Local Area Network Adapters (WLAN) - Enables and enhances the Wireless LAN network adapter
 - 2. Bluetooth (BT) - Enables and enhances the Bluetooth Adapter
- Touch Pad - Enhances the pointing device features
- USB 3.0/3.1

2.4.2.2 Applications:

- DCPM- Dell Command Power Manager
- Intel WiDi display

2.5 BIOS

Dell recommends flashing the latest BIOS available to the system. This is posted on Dell’s driver & downloads support web site (support.dell.com) under the “BIOS” section.

Some of the BIOS settings are critical to Operating System performance and installation. These are as follows:

Settings → System Configuration → SATA Operation

- Disabled: SATA Controllers are hidden
 - AHCI Basic Disk Operation mode, does not require additional storage driver.
 - AHCI, SATA bus is configured for AHCI mode (Advanced Disk Operation mode) which offers faster performance, and increased battery life. This mode requires an additional storage driver provided by Dell
- If AHCI mode is selected, System may occur blue screen and it is not recommend to set it for this platform
 - If AHCI or RAID mode is selected, Intel Rapid Storage Technology driver must be installed in conjunction with the installation of the Operating System. See section “2.4.4 Intel Storage” of this document

Settings → General → Advanced Boot Options → Enable Legacy Option ROMs

- If OS installed with Legacy Mode, system may occur un-expected behavior and it is not recommended to install OS with Legacy Mode

TPM Security:

These options enable and configure the Trusted Platform Module (TPM). If TPM is to be deployed, TPM must be enabled in the BIOS Setup program

2. Security → TPM Security

- TPM Security:
 - Disabled: The BIOS will not turn on the TPM during POST. The TPM will be non-functional and invisible to the Operating System
 - Enabled(Default):: The BIOS will turn the TPM during POST so that it can be used by the Operating System
- TPM On = The TPM will be enabled and activated
- Clear = The BIOS clears the information stored in the TPM

2.6 Recommended Drivers / Applications Installation Order

For best results, Dell recommends installing drivers / applications in the following order:

2.6.1 Intel Mobile Chipset Software Installation Utility

- Microsoft Operating Systems might not include the updated Intel Chipset Mobile driver for Dell notebooks , Ultrabook . The Intel Mobile Chipset driver is available on Dell’s driver & downloads support web site (support.dell.com) under the “Chipset” section

2.6.2 Critical Microsoft QFEs

- Dell recommends installing all of the latest available fixes specific to the systems
- Please enable the Windows Update and connect to Internet once install the driver of Integrated Wired Network Controller. (see more detail in chapter 2.4.10)

2.6.3 Media Memory Card Controller

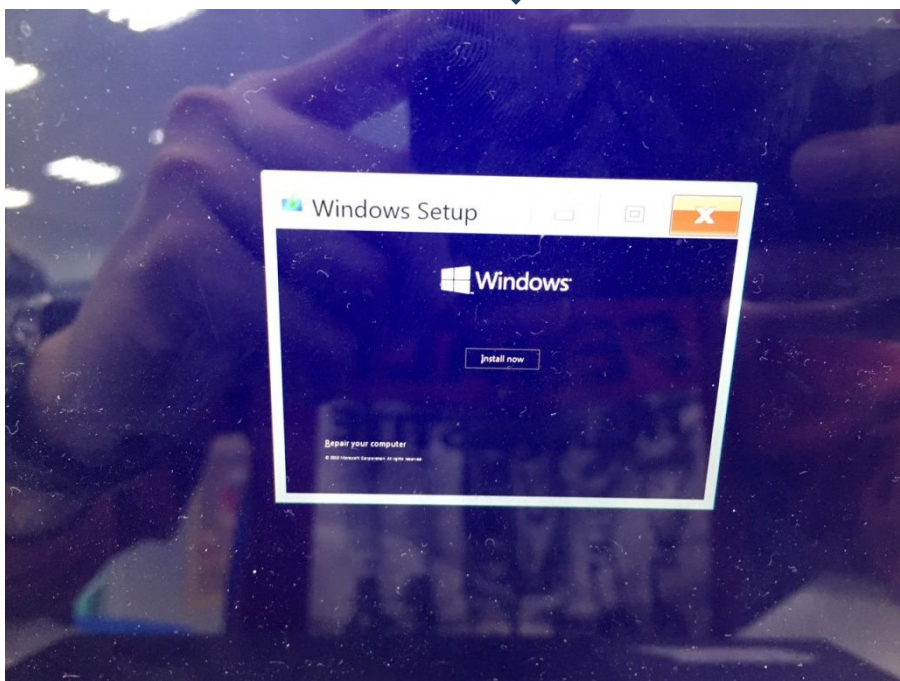
- Microsoft Operating Systems do not include the Memory Card controller driver. Install the following driver provided by Dell:
 - Realtek driver is available on Dell’s driver & downloads support web site (support.dell.com) found under the “Chipset” section

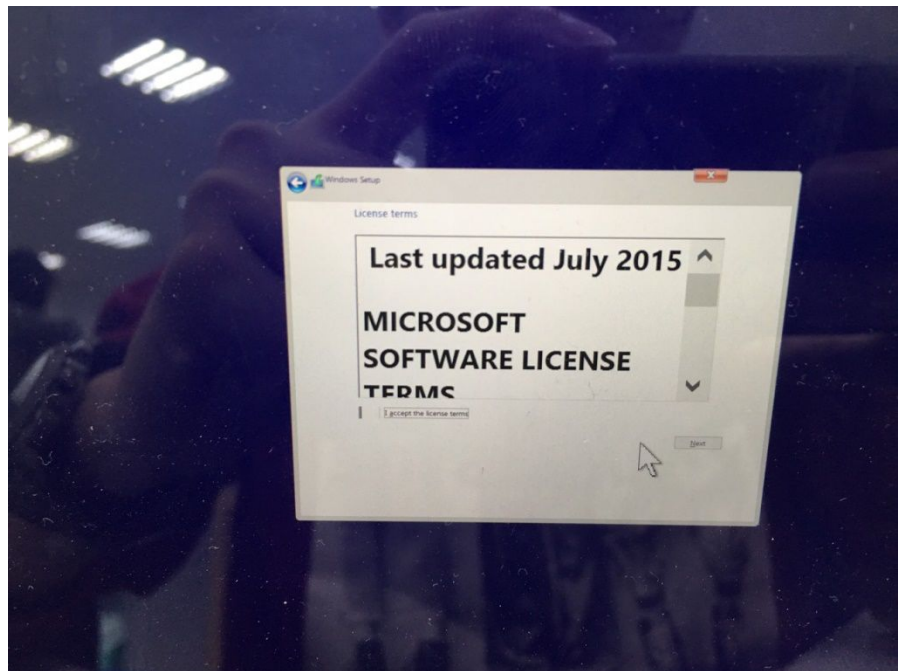
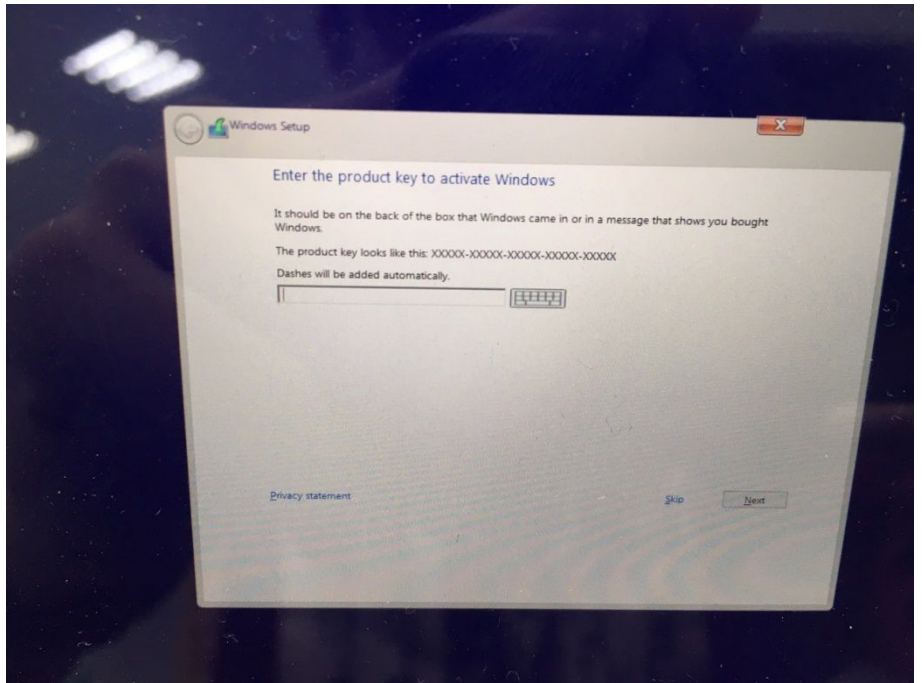
2.6.4 Intel Storage - Intel Rapid Storage Technology

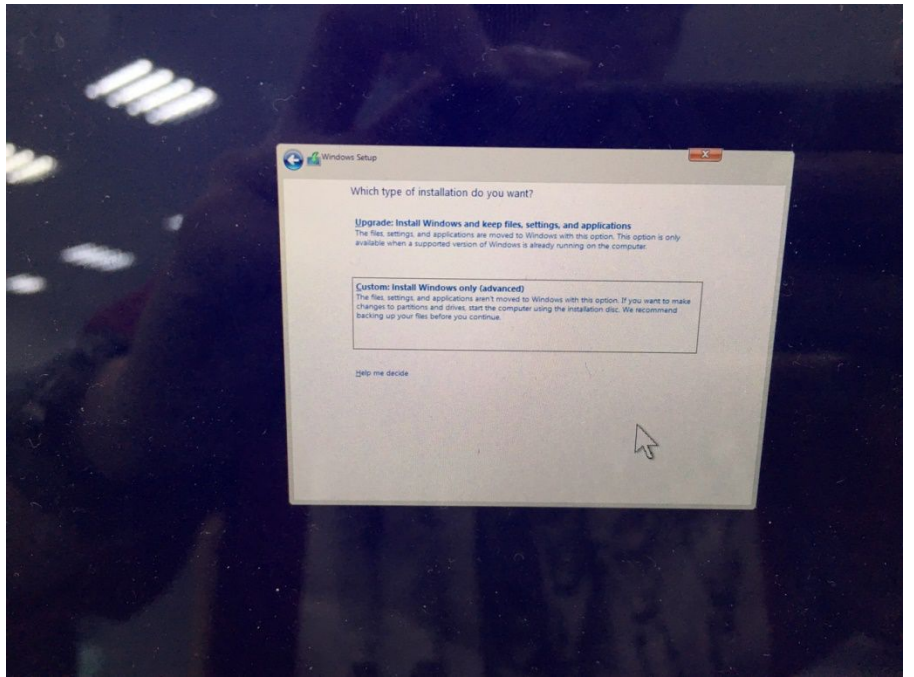
- The Intel Rapid Storage Technology (IRST) driver is required to be installed on Operating Systems in AHCI or RAID mode
- The Intel IRST application must also be installed
- The SATA operation modes are configured in the BIOS. Refer to the BIOS section 2.3
- If the SATA mode is configured in AHCI or RAID mode, the IRST driver must be installed during the initial Operating System installation stages. The IRST driver is only available from Dell
- If SATA configuration mode in the BIOS is set to AHCI or RAID, install the Dell IRST driver and application available on Dell’s driver & downloads support web site (support.dell.com) under the “Serial ATA” section

- Follow these steps to install the IRST driver:

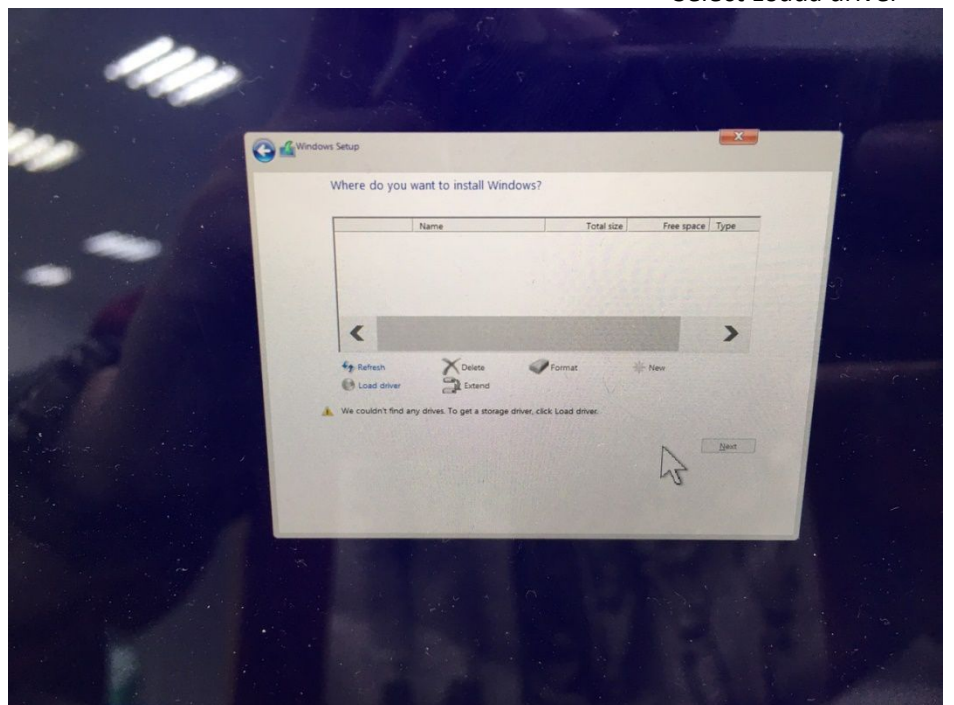
1. For Microsoft Windows 10 (64-Bit) Operating Systems:
 - Installing the Intel IRST driver after the installation of the Operating System
 - Boot to the Operating System DVD or Boot from PXE , then start to load IRST driver for detecting PCIe Solid State Drive via below command and then installation OS
 - Plug in Win10 Pure OS installation key to unit and then boot to USB key.





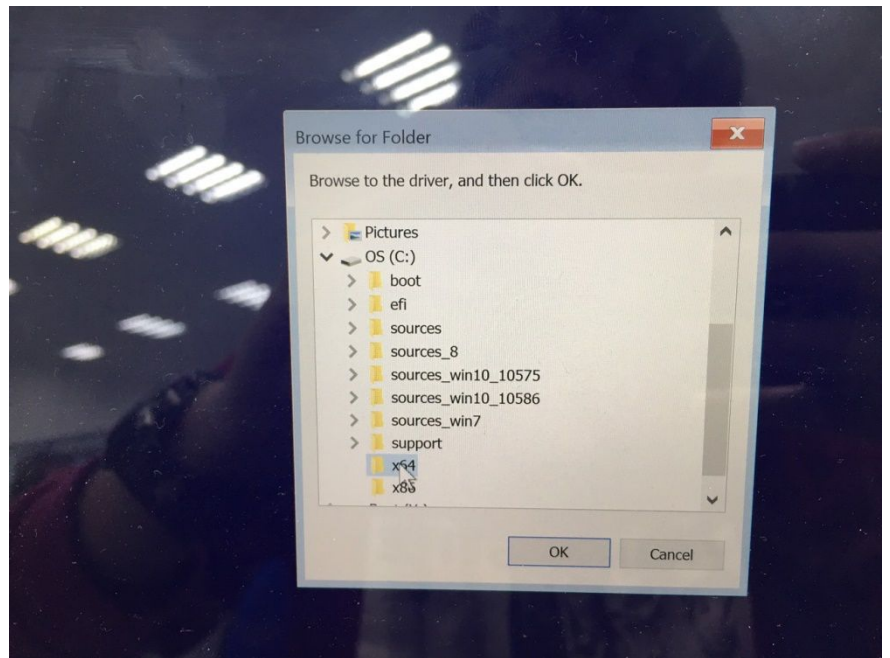
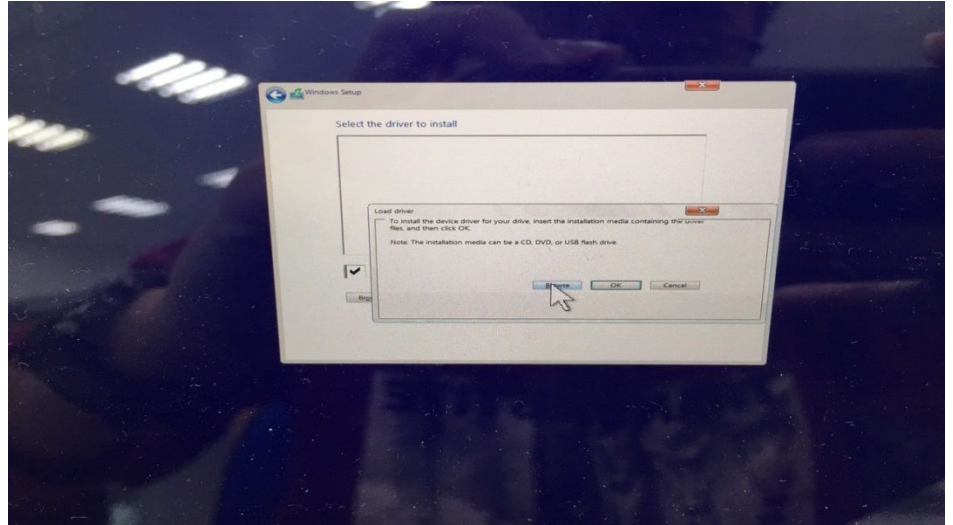


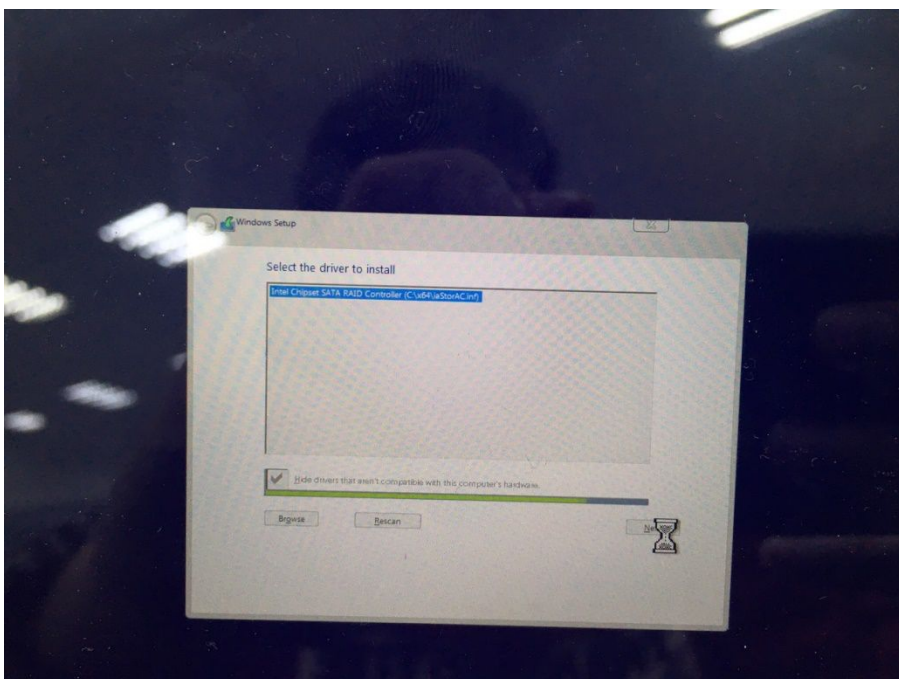
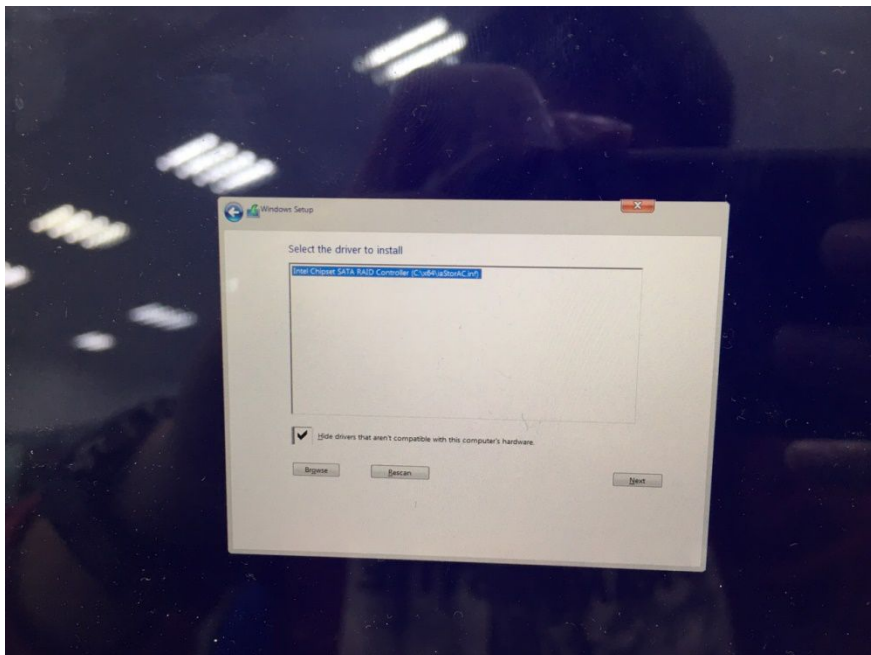
Select Loada driver





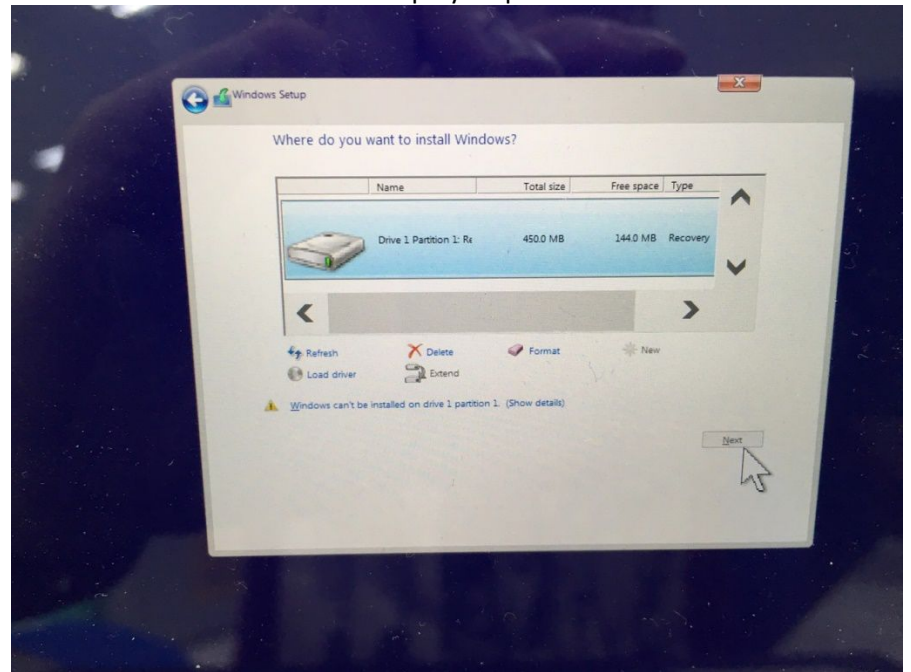
Press "browse" to find IRST driver file(iastorAC.inf) and load It.







Unit will detect the NVME SSD and then follow step by step to finish Win10 OS installation.



- After completing the OS installation, insert the Dell RDVD
- Select the IRST driver and follow the installation procedure

Note: the latest IRST driver can also be obtained from support.dell.com under the “SATA Drivers” section

2.6.5 Graphics:

- Microsoft Operating Systems include the VGA graphics drivers only. Therefore for optimum graphics performance, Dell recommends installing the Dell graphics driver applicable to their system available on Dell’s driver & downloads support web site (support.dell.com) under the “Video” section

2.6.6 Audio:

- Microsoft Operating Systems do not include the Audio driver recommended by Dell. The HD Audio driver is available on Dell’s driver & downloads support web site (support.dell.com) under the “Audio” section

2.6.7 Dell Command Power Manager – DCPM

- DCPM is a Dell developed application providing a advanced set of power management configuring and alerting capabilities
 - Dell customized power plans and extensions
 - Battery Health Information
 - Advanced Charge mode
- The DCPM Application is available on Dell’s driver & downloads support web site (support.dell.com) under “System Utilities” section

2.6.8 Wireless Local Network Adapters (WLAN)

- Win10 64-Bit Operating Systems do not provide native device driver support for WLAN controllers featured in Dell systems. To obtain wireless network functionality, install the Wireless LAN device driver applicable to the WLAN devices installed in the notebook computer found under the “Network” section posted on Dell’s driver & downloads support web site (support.dell.com). The installer also provides WLAN application support which provides additional features including enterprise authentication enhancements

Note: With Intel Wireless Display (WiDi) you can quickly connect your laptop to your TV and projector using the Intel® Centrino® wireless solution that’s already built into your laptop. Because it’s based on Wi-Fi*, there are no cables between the laptop and TV/Projector. To obtain Wireless Display(ONLY applied to Intel WLAN) functionality, install the Wireless Display Application found under the “Network” section posted on Dell’s driver & downloads support web site (support.dell.com).

2.6.9 Touchpad

- Microsoft Windows 10 Operating System includes the Touchpad drivers, users don’t need to install additional Touchpad drivers.

2.6.10 Intel Thunderbolt Driver

- Microsoft Operating Systems does not include the Thunderbolt driver. Install the Thunderbolt driver available on Dell’s driver & downloads support web site (support.dell.com) under the “Chipset” section

2.6.11 USB 3.0/3.1

- Microsoft Windows 10 64-bit Operating Systems include the USB 3.0 driver.

2.6.12 Webcam

- Microsoft Windows 10 Operating System includes the Webcam drivers, users don’t need to install additional Webcam drivers.
- For video capturing / streaming features, install webcam software available from a variety of third party providers and as freeware

Appendix

Appendix A

.NET Framework Requirements

What is .NET Framework?

The .NET Framework is a software framework from Microsoft, which is bundled with Windows operating systems. The .NET Framework is intended to be used by most applications created for the Microsoft Windows platform.

Appendix B

Dell Dock WD 15

1. Dell Dock WD15 Design
 - a. It's USB Type-C interface. Please connect to XPS system via Type-C.



- b. A lot of I/O ports on dock and some need driver support. List as below
 - Realtek USB Audio Driver
 - Realtek USB GBE Ethernet Controller Driver
 - c. Dell Dock WD15 support document
<http://www.dell.com/support/home/us/en/19/product-support/product/dell-dock-wd15/research>
 2. Drivers & Downloads :
<http://www.dell.com/support/home/us/en/19/product-support/product/dell-dock-wd15/drivers>
 3. Dell Dock WD15 Driver Set
 - Applies to 7th generation Latitude E-Family & Mobile Precision only

To fully support new generation Dell Dock WD15, DELL highly recommend installing the following BIOS/Drivers step by step on 64 bit Windows OS .

- a. Connect the AC adapter to the **Dell Dock (WD15)**, and then connect the USB Type-C connector to the system
 - b. Flash the latest **BIOS** available to the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**BIOS**” section. Restart system before next step.
 - c. Install **Intel(R) Thunderbolt Controller Driver** available to the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**Chipset**” section. Restart system before next step.
 - d. Install **Intel(R) Thunderbolt 3 Firmware Update** available to the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**Docks/Stands**” section. Restart system before next step.
 - e. Install **Intel® HD Graphics Driver** available for the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**Video**” section. Restart system before next step.
 - f. Install **Realtek USB GBE Ethernet Controller Driver for Dell Dock WD15** available to the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**Docks/Stands**” section. Restart system before next step.
 - g. Install **Realtek USB Audio Driver for Dell Dock WD15** available to the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**Docks/Stands**” section. Restart system before next step.
 - h. Install the **Dell Dock Firmware Update Tool** available to the system. This is posted on Dell's driver & downloads support web site (dell.com/support) under the “**Docks/Stands**” section. Restart system before next step.

NOTE: After the update process completes, it's desired to shut down the computer and perform below steps in order to make the new firmware take effect.

- Power off the system.
- Disconnect the Thunderbolt 3 (Type-C) cable from the computer and then remove the AC adapter of dock from the power outlet.
- Then follow the recommended steps of connecting the AC adapter to the dock first and then attaching the Thunderbolt cable to the computer.
- Power on the computer with the docking station connected.

Dell provides the **Dell Command| Update** Application on a business client supported platforms to simplify the BIOS, firmware & driver update experience. This application is located under the "**Systems Management**" section of the Dell Support website (www.dell.com/support). Be sure to pick your system type from the list or enter your service tag to ensure you get the right version for your system.

NOTE: The **Dell Dock Firmware Update**, and **Intel HD Graphics Driver** are excluded in **Dell Command | Update v2.2.0**.

Dell also provides pre-packaged CAB pack for OS deployment through System Center Configuration Manager (SCCM) or other deployment services, which now contains prerequisite drivers for Dell Thunderbolt™ Dock. The CAB files can be downloaded from the "**Systems Management**" section of the Dell Support website (www.dell.com/support).

NOTE: After image deployment process, users have to further complete **Intel Thunderbolt 3 Firmware Update** and **Dell Dock Firmware Update** prior to using the docking station properly.

Appendix C

Dell Thunderbolt Dock TB15

1. What is the Dell Thunderbolt Dock TB15?

It is the Type-C dock product for extension a lot of I/O device usage.
Need User connect the dock via Type-C cable.



Dell Thunderbolt Dock TB15 support document were web-post under Select a product/Electronics & Accessories/Docking Stations/Dell Thunderbolt Dock TB15.

<http://www.dell.com/support/home/us/en/19/product-support/product/dell-thunderbolt-dock-tb15/research>

2. Dell Thunderbolt Dock TB15 Driver Set

– Applies to 7th generation Latitude E-Family & Mobile Precision only

To fully support new generation Dell Thunderbolt Dock TB15, DELL highly recommend installing the following BIOS/Drivers step by step on 64 bit Windows OS .

- a. Connect the AC adapter to the **Dell Thunderbolt Dock (TB15)**, and then connect the USB Type-C connector to the system
- b. Flash the latest **BIOS** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**BIOS**” section. Restart system before next step.
- c. Install **Intel(R) Thunderbolt Controller Driver** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Chipset**” section. Restart system before next step.
- d. Install **Intel(R) Thunderbolt 3 Firmware Update** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
- e. Install **Intel® HD Graphics Driver** available for the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Video**” section. Restart system before next step.
- f. For **Dell Thunderbolt Dock** only, install **ASMedia USB 3.0 Extended Host Controller Driver for Dell Thunderbolt Dock** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section..
- g. For **Dell Thunderbolt Dock** only, install **ASMedia USB 3.0 Extended Host Firmware Utility** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
- h. Install **Realtek USB GBE Ethernet Controller Driver for Dell Thunderbolt Dock TB15** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section.
Restart system before next step.
- i. Install **Realtek USB Audio Driver for Dell Thunderbolt Dock TB15** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.
- j. Install the **Dell Thunderbolt Dock Firmware Update Tool** available to the system. This is posted on Dell’s driver & downloads support web site (dell.com/support) under the “**Docks/Stand**” section. Restart system before next step.

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- Then follow the recommended steps of connecting the AC adapter to the dock first and then attaching the Thunderbolt cable to the computer.
- Power on the computer with the docking station connected.

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NOTE: After image deployment process, users have to further complete **Intel Thunderbolt 3 Firmware Update** and **Dell Thunderbolt Dock Firmware Update** prior to using the docking station properly.