

# Precision 3431

## Re-imaging guide for Windows

Computer Model: Precision 3431



# Notes, cautions, and warnings

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**NOTE:** A NOTE indicates important information that helps you make better use of your product.



**CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.



**WARNING:** A WARNING indicates a potential for property damage, personal injury or death

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# Installation overview

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**NOTE: Dell recommends that you download and install the device drivers from the Dell [Drivers & Downloads](#) website. Installing device drivers from a non-Dell website can cause system performance issues, corrupt operating system files, blue screen errors, unexpected shutdown, or infect your computer with malicious software.**

Device drivers must be updated when you reinstall the operating system using either CD, DVD, USB key, or when you are facing networking, graphics, sound or other hardware-related problems. Dell recommends that you install or update device drivers if you have performed a factory reset of your Dell computer using the Dell Backup and Recovery application or other factory-reset methods. This ensures that you have the latest device drivers installed on your computer and that the devices function optimally.

Installing or updating device drivers may lead to the following improvements:

- Increase system performance
- Patch security risks
- Expand compatibility
- Fix device issues and support new features

However, if your computer is operating normally and there are no driver issues listed in Windows Device Manager and Windows is not suggesting urgent or recommended driver updates, driver updates are unnecessary. Updating drivers unnecessarily may create new problems. Review the importance of each driver update on the Dell driver downloads page before assessing the need to continue with an update.



# Introduction

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Re-imaging is the process of removing all software on the computer and reinstalling the removed software. Re-imaging is required when software in the computer is corrupted or damaged and can also be used as a means of removing harmful and malicious software in your computer. This re-imaging guide provides the steps required for re-imaging your computer.



**CAUTION:** This re-imaging guide is designed for system administrators. Do not attempt to re-image the system if you are not an administrator or are unsure of the procedures. Failure to follow instructions may result in permanent data loss.



**NOTE:** Information provided in this guide is applicable to computers with Windows only.

This guide assists you in installing Dell-recommended software stack and settings, drivers, and applications, which are tested and validated on the Precision Desktop. The installation of the listed drivers and applications as described in the guide enhances the optimal performance of your computer.


Dell also provides drivers and applications that are not included with the Windows operating system.

It is always recommended to re-image on a newly-installed operating system and not from any previous image-build. Ensure BIOS settings, including SATA configurations and modes, are appropriately set and the latest drivers and applications are used when re-imaging the computer.



# Order of reinstallation

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 **NOTE: Some drivers and application installation steps may not be applicable, depending on the configuration of the computer you have ordered.**

To achieve optimal performance, install the drivers and applications in the following sequence:

- 2 BIOS: Allows the operating system to be loaded into the memory and enables the initial startup process on your computer.
- 3 Windows operating system: The operating system controls the system's hardware to be a base on which other software can operate on.
- 4 Intel Chipset driver: Allows Windows to communicate and adjust settings on components on the system board.
- 5 Critical Quick Fix Engineering (QFE) updates: updates that fix and optimize the operating system.
- 6 Media-card reader driver: Enables and enhances the media-card reader.
- 7 Intel Rapid Storage Technology Driver and APPX: Enables and enhances data storage virtualization for the storage drives installed in the computer.
- 8 Graphics:
  - Enhances and optimizes video performance
  - Enables and provides additional functionality not included in the native VGA driver, including:
    - \* User-customizable power management features
    - \* Portability and behavioral profiles
    - \* Multiple-monitor support
- 9 Audio: Enables and enhances the audio controller.
- 10 Security, which includes:
  - Dell ControlVault2 Driver and Firmware
- 10 Networking and Communication, which includes:
  - Wireless Local Area Network Adapters (WLAN): Enables and enhances the wireless adapter
  - Bluetooth: Enables and enhances the Bluetooth adapter



11 Intel Management Engine Components Installer and Intel Manageability and Security Status Application: Intel Management Engine driver enable advance manageability features.

12 Dell Client Command Suite

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**NOTE:** Dell Client Command Suite is the new name of our industry leading Client Systems Management tools. These tools make Dell commercial client systems the world's most manageable client devices. Click on a [link](#) for more details





# Updating or Resetting the BIOS

## Flashing the BIOS

It is recommended to flash BIOS when an update is available or when you replace the system board. To flash the BIOS:

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads** → **Find it myself**.
- 5 Select the operating system installed on your computer.
- 6 Scroll down the page and expand **BIOS**.
- 7 Click **Download** to download the latest version of the BIOS for your computer.
- 8 After the download is complete, navigate to the folder where you saved the BIOS update file.
- 9 Double-click the BIOS update file icon and follow the instructions on the screen.

## Clearing CMOS settings

If, flashing your computer with the latest BIOS update results in your computer being unable to boot, a BIOS reset is necessary. Clearing the CMOS settings will reset the BIOS to factory settings. For more information about clearing the CMOS settings, see your computer's *Service Manual*.

## Trusted Platform Module (TPM) security

TPM must be enabled in the BIOS setup program for it to be deployed on the computer. Follow these steps to enable and configure the TPM:

- 1 Turn on or restart your computer.



- 2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.  
The BIOS setup program is displayed.
- 3 On the left pane, select **Security** → **TPM Security** → **Clear TPM**.
- 4 Select or clear any of the following options to enable or disable it, respectively:
  - **Enabled (Default):** The BIOS enables the TPM during POST and it can be accessed by the operating system.
  - **Disabled:** The BIOS will not enable the TPM during POST and it cannot be accessed by the operating system.
  - **TPM on:** The TPM is enabled and activated.
  - **Clear:** The BIOS clears the information stored in the TPM.
- 5 Save the settings and exit.

# Reinstalling the operating system

The 64-bit Windows 10 operating system is validated for use on this computer. You can reset or reinstall the operating system under different scenarios. For more information about reinstalling the operating system, see the knowledge base article [SLN297920](https://www.dell.com/support/article/SLN297920) at [www.dell.com/support](http://www.dell.com/support).

Before attempting a reinstall of your operating system, Dell recommends that you backup all data as described in the knowledge base article located [here](#).



# Reinstalling drivers and Applications

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Drivers and applications are software that enables Windows (or another operating system) to communicate with the hardware devices and software in your computer. Devices such as video and sound cards require drivers to function correctly within Windows and require applications to enable users to adjust hardware settings.

The Windows reinstallation includes drivers for most devices, but device-specific drivers may have to be downloaded and installed separately. Dell recommends that you download the device drivers for your Dell computer from [Drivers & Downloads](#).

Applications must be downloaded and installed separately. Dell recommends that you download the required applications for your Dell computer from the [Dell Download Center](#).

## Displaying drivers and applications on your computer

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click Drivers & downloads → Find it myself.
- 5 Select the Windows operating system installed on your computer to get a list of the drivers and applications available on your computer.

# Reinstallation sequence for drivers and applications

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Driver installation is critical if you have reinstalled the Windows operating system on your Dell computer. Install the drivers in the correct sequence for your computer to function correctly. In some scenarios, you may have to reinstall or update the device driver if you are encountering any issues with a specific device.

For more information, see the Dell knowledge-based article [SLN148687](https://www.dell.com/support/article/SLN148687) at [www.dell.com/support.com](https://www.dell.com/support.com).



**NOTE: Windows 10 operating system includes the touchpad drivers— no other touchpad driver installation is required.**



**NOTE: Windows 10 operating system includes the webcam drivers—no additional webcam driver installation is required. For video capture or streaming, users can install webcam software available from third-party providers.**

Dell recommends installing drivers or applications in the following sequence.

## 1 Intel chipset device software

The Windows operating system may not include the updated Intel chipset driver set for Dell computers. These Intel chipset drivers are available on Dell's support site [www.dell.com/support](https://www.dell.com/support).

### Downloading and installing these chipset drivers

- 1 Turn on your computer.

- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**
- 5 Scroll down the page and select **Chipset** in Category
- 6 Click **Download** to download chipset drivers for your computer.
- 7 After the download is complete, navigate to the folder where you saved the chipset driver files.
- 8 Double-click the chipset driver files icon and follow the instructions on the screen.



**NOTE: Intel Chipset drivers including Intel Chipset Device Software Driver, Intel Dynamic Platform and Thermal Framework, Intel Management Engine Components Installer and Intel HID Event Filter Driver.**

## 2 Critical Quick Fix Engineering (QFE) updates

Dell recommends installing all the latest available QFE updates from the latest Service Pack. Service packs are automatically downloaded and installed when Windows Updates is enabled and can be manually downloaded and installed from the Windows support site.

## 3 Media-card reader drivers

The Windows operating system does not include the media-card reader driver. Install the Realtek driver, that is available for download on the Dell support site.

### Downloading and installing the media-card reader driver

- 1 Turn on your computer.

- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**
- 5 Scroll down the page and select **Chipset** in Category.
- 6 Click **Download** to download the media-card reader driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the card reader driver file.
- 8 Double-click the card reader driver file icon and follow the instructions on the screen.

## 4 Intel Rapid Storage Technology (IRST)

The IRST software package enables and enhances high-performance Serial ATA (SATA) and SATA RAID capabilities for supported operating systems. The IRST software package provides an added protection against data loss in the event of a hard drive failure.



**NOTE: The following conditions must be met before you can install IRST on your computer.**

- Your computer has a RAID I/O controller hub (ICH). If your computer does not have a RAID ICH, you cannot install IRST unless a third-party RAID controller card is installed.
  - Your RAID controller is enabled by default.



**CAUTION: If a SATA hard drive is already installed, enabling the RAID controller might cause your computer to display a blue screen and an error code followed by a system reboot. To enable RAID, reinstall the operating system.**

### Downloading and installing the IRST driver

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).

- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**.
- 5 Scroll down the page and select **Serial ATA** in Category.
- 6 Click **Download** to download the IRST driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the IRST driver file.
- 8 Double-click the driver file icon and follow the instructions on the screen.

## Downloading and installing the IRST APPX

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**.
- 5 Scroll down the page and select **Serial ATA** in Category.
- 6 Click **Download** to download the IRST APPX for your computer.
- 7 After the download is complete, navigate to the folder where you saved the file.

## 5 Graphics

The Windows operating system includes the VGA graphics driver only. For optimal graphics performance, install the Dell graphics driver applicable to your computer that is available for download on the Dell support site.



## Downloading and installing the Dell graphics driver

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**
- 5 Scroll down the page and select **Video** in Category.
- 6 Click **Download** to download the graphics driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the graphics driver file.
- 8 Double-click the graphics driver file icon and follow the instructions on the screen.

## 6 Audio

The Windows operating system does not include the audio driver recommended by Dell. Install the HD audio driver that is available for download on the Dell support site.

### Downloading and installing the Dell audio driver

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**.
- 5 Scroll down the page and select **Audio** in Category.
- 6 Click **Download** to download the audio driver for your computer.

- 7 After the download is complete, navigate to the folder where you saved the audio driver file.
- 8 Double-click the audio driver file icon and follow the instructions on the screen.

## 7 Dell ControlVault2 Driver and Firmware

Dell ControlVault2 contains software that protects data in your computer from disclosure or modification. The software package is available on the Dell support site.

### Downloading and installing Dell ControlVault2

- 1 Turn on your computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

- 4 Click **Drivers & downloads**.
- 5 Scroll down the page and select **Security** in Category
- 6 Click **Download** to download the software package for your computer.
- 7 After the download is complete, navigate to the folder where you saved Dell ControlVault2 Driver and Firmware.
- 8 Double-click the file icon and follow the instructions on the screen.

## 8 Wireless Local Network (WLAN) drivers and applications

Windows operating systems do not provide native device driver support for WLAN controllers on Dell computers. To obtain wireless network functionality, install the relevant WLAN drivers from the Dell support site. WLAN applications, which provide

additional features including enterprise authentication enhancements can also be installed from the Dell support site.

## Downloading and installing the Wi-Fi driver

- 1 Turn on the computer.
- 2 Go to [www.dell.com/support](http://www.dell.com/support).
- 3 Click Product support, enter the Service Tag of your computer, and then click Submit.



NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.

- 4 Click **Drivers & downloads**.
- 5 Scroll down the page and select **Network** in Category.
- 6 Click **Download** to download the Wi-Fi driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the Wi-Fi driver file.
- 8 Double-click the Wi-Fi driver file icon and follow the instructions on the screen.



NOTE: For Wireless Wide Area Network (WWAN) Drivers. Please select **Modem/Communications** in Category of above Step 4.

## 9 Intel Management Engine driver

Intel Management Engine driver enable advance manageability features. To obtain manageability functionality, install the relevant Intel ME drivers from the Dell support site.

### Downloading and installing the Intel Management Engine Components Installer

1. Turn on your computer.
2. Go to [www.dell.com/support](http://www.dell.com/support).
3. Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

4. Click **Drivers & downloads**
5. Scroll down the page and select **Chipset** in Category.
6. Click **Download** to download software package for your computer.
7. After the download is complete, navigate to the folder where you saved the file.
8. Double-click the file icon and follow the instructions on the screen.

## **Downloading and installing the Intel Manageability and Security Status Application**

1. Turn on your computer.
2. Go to [www.dell.com/support](http://www.dell.com/support).
3. Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.



**NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**

4. Click **Drivers & downloads**
5. Scroll down the page and select **Chipset** in Category.
6. Click **Download** to download the software package for your computer.
7. After the download is complete, navigate to the folder where you file.
8. Double-click the file icon and follow the instructions on the screen

# .NET Framework

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

# Getting help and contacting Dell

## Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 1. Self-help resources

Information about Dell products and services	<a href="http://www.dell.com">www.dell.com</a>
Dell Help & Support app	
Tips	
Contact Support	In Windows search, type <i>Help and Support</i> , and press <b>Enter</b> .
Online help for operating system	<a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a> <a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a>
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	<a href="http://www.dell.com/support">www.dell.com/support</a>
Dell knowledge base articles for a variety of computer concerns	<ol style="list-style-type: none"><li>1 Go to <a href="http://www.dell.com/support">www.dell.com/support</a>.</li><li>2 Type the subject or keyword in the <b>Search</b> box.</li><li>3 Click <b>Search</b> to retrieve the related articles.</li></ol>
Learn and know the following information about your product:	See <i>Me and My Dell</i> at <a href="http://www.dell.com/support/manuals">www.dell.com/support/manuals</a> .
<ul style="list-style-type: none"><li>• Product specifications</li></ul>	



- Operating system
- Setting up and using your product
- Data backup
- Troubleshooting and diagnostics
- Factory and system restore
- BIOS information

To locate the *Me and My Dell* relevant to your product identifies your product through one of the following:

- Select **Detect Product**.
- Locate your product through the drop-down menu under **View Products**.
- Enter the **Service Tag number** or **Product ID** in the search bar.

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://www.dell.com/contactdell).



**NOTE: Availability varies by country and product, and some services may not be available in your country.**



**NOTE: If you do not have an active internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.**