

Inspiron 14 3000 Service Manual

Computer Model: Inspiron 14-3473
Regulatory Model: P76G
Regulatory Type: P76G004



Notes, cautions, and warnings



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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Contents

Before working inside your computer.....	11
Before you begin	11
Safety instructions.....	11
Recommended tools.....	12
Screw list.....	13
After working inside your computer.....	15
Removing the battery.....	16
Procedure.....	16
Replacing the battery.....	17
Procedure.....	17
Removing the optical drive.....	18
Prerequisites.....	18
Procedure.....	18
Replacing the optical drive.....	21
Procedure.....	21
Post-requisites.....	21
Removing the keyboard.....	22
Prerequisites.....	22
Procedure.....	22

Replacing the keyboard.....	25
Procedure.....	25
Post-requisites.....	25
Removing the base cover.....	26
Prerequisites.....	26
Procedure.....	26
Replacing the base cover.....	31
Procedure.....	31
Post-requisites.....	33
Removing the memory module.....	34
Prerequisites.....	34
Procedure.....	34
Replacing the memory module.....	36
Procedure.....	36
Post-requisites.....	37
Removing the hard drive.....	38
Prerequisites.....	38
Procedure.....	38
Replacing the hard drive.....	41
Procedure.....	41
Post-requisites.....	41
Removing the wireless card.....	42
Prerequisites.....	42
Procedure.....	42

- Replacing the wireless card..... 44**
 - Procedure.....44
 - Post-requisites..... 45

- Removing the I/O board..... 46**
 - Prerequisites.....46
 - Procedure.....46

- Replacing the I/O board..... 48**
 - Procedure.....48
 - Post-requisites..... 48

- Removing the coin-cell battery..... 49**
 - Prerequisites.....49
 - Procedure.....49

- Replacing the coin-cell battery..... 51**
 - Procedure..... 51
 - Post-requisites..... 51

- Removing the speakers..... 52**
 - Prerequisites.....52
 - Procedure.....52

- Replacing the speakers..... 54**
 - Procedure.....54
 - Post-requisites..... 54

- Removing the heat sink..... 55**
 - Prerequisites..... 55
 - Procedure..... 55

Replacing the heat sink.....	57
Procedure.....	57
Post-requisites.....	57
Removing the power-button board.....	58
Prerequisites.....	58
Procedure.....	58
Replacing the power-button board.....	60
Procedure.....	60
Post-requisites.....	60
Removing the display assembly.....	61
Prerequisites.....	61
Procedure.....	61
Replacing the display assembly.....	64
Procedure.....	64
Post-requisites.....	64
Removing the display bezel.....	65
Prerequisites.....	65
Procedure.....	65
Replacing the display bezel.....	67
Procedure.....	67
Post-requisites.....	67
Removing the display panel.....	68
Prerequisites.....	68
Procedure.....	68

Replacing the display panel.....	71
Procedure.....	71
Post-requisites.....	71
Removing the camera.....	72
Prerequisites.....	72
Procedure.....	72
Replacing the camera.....	74
Procedure.....	74
Post-requisites.....	74
Removing the display hinges.....	75
Prerequisites.....	75
Procedure.....	75
Replacing the display hinges.....	77
Procedure.....	77
Post-requisites.....	77
Removing the display cable.....	78
Prerequisites.....	78
Procedure.....	78
Replacing the display cable.....	81
Procedure.....	81
Post-requisites.....	81
Removing the system board.....	82
Prerequisites.....	82
Procedure.....	82

Replacing the system board.....	86
Procedure.....	86
Post-requisites.....	87
Removing the touchpad.....	88
Prerequisites.....	88
Procedure.....	88
Replacing the touchpad.....	92
Procedure.....	92
Post-requisites.....	92
Removing the power-adapter port.....	94
Prerequisites.....	94
Procedure.....	94
Replacing the power-adapter port.....	96
Procedure.....	96
Post-requisites.....	96
Removing the display back-cover and antenna assembly.....	97
Prerequisites.....	97
Procedure.....	97
Replacing the display back-cover and antenna assembly.....	99
Procedure.....	99
Post-requisites.....	99



Removing the palm rest.....	100
Prerequisites.....	100
Procedure.....	101
Replacing the palm rest.....	102
Procedure.....	102
Post-requisites.....	102
Downloading drivers.....	103
Downloading the audio driver.....	103
Downloading the graphics driver.....	103
Downloading the USB 3.0 driver.....	104
Downloading the Wi-Fi driver.....	104
Downloading the media-card reader driver.....	104
Downloading the chipset driver.....	105
System setup.....	106
Boot Sequence.....	106
Navigation keys.....	106
BIOS overview.....	107
Entering BIOS setup program.....	107
System setup options.....	108
Troubleshooting.....	114
Flashing the BIOS.....	114
Flashing BIOS (USB key).....	114
Enhanced Pre-Boot System Assessment (ePSA) diagnostics.....	115
Running the ePSA diagnostics.....	115
Diagnostics.....	116
Flea power release.....	117
Wi-Fi power cycle.....	118

Getting help and contacting Dell.....119
Self-help resources..... 119
Contacting Dell..... 120

Before working inside your computer


 **NOTE:** The images in this document may differ from your computer depending on the configuration you ordered.


Before you begin

- 1 Save and close all open files and exit all open applications.
- 2 Shut down your computer. Click **Start** →  **Power** → **Shut down**.
 **NOTE:** If you are using a different operating system, see the documentation of your operating system for shut-down instructions.
- 3 Disconnect your computer and all attached devices from their electrical outlets.
- 4 Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
- 5 Remove any media card and optical disc from your computer, if applicable.

Safety instructions

Use the following safety guidelines to protect your computer from potential damage and ensure your personal safety.

 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

 **WARNING:** Disconnect all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting to the electrical outlet.

 **CAUTION:** To avoid damaging the computer, ensure that the work surface is flat and clean.

- △ **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching pins and contacts.
- △ **CAUTION:** You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that shipped with the product or at www.dell.com/regulatory_compliance.
- △ **CAUTION:** Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.
- △ **CAUTION:** When you disconnect a cable, pull on its connector or on its pull tab, not on the cable itself. Some cables have connectors with locking tabs or thumb-screws that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, ensure that the ports and connectors are correctly oriented and aligned.
- △ **CAUTION:** Press and eject any installed card from the media-card reader.












Recommended tools





The procedures in this document may require the following tools:

- Phillips screwdriver #1
- Plastic scribe

Screw list

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Base cover	Palm-rest assembly	M2.5x8	8	
Base cover	Palm-rest assembly	M2x5	2	
Base cover	Palm-rest assembly	M2x2	3	
Computer base	Palm-rest assembly	M2x5	3	
Display panel	Display-back cover and antenna assembly	M2x3	4	
Hard drive	Hard-drive assembly	M3x3	4	
Hard-drive bracket	Hard-drive assembly	M2x3	2	
Hinges	Display back-cover and antenna assembly	M2.5x2.5	6	
Optical-drive bracket	Optical drive	M2x3	1	
Power-adaptor port	Palm-rest assembly	M2x3	1	
Power-button board	Palm-rest assembly	M2x2	1	

Component	Secured to	Screw type	Quantity	Screw image
System board	Palm-rest assembly	M2x3	1	
Touch-pad board	Palm-rest assembly	M2x3	6	
Touch-pad bracket	Palm-rest assembly	M2x3	1	
Wireless-card bracket	System board	M2x3	1	

After working inside your computer



CAUTION: Leaving stray or loose screws inside your computer may severely damage your computer.

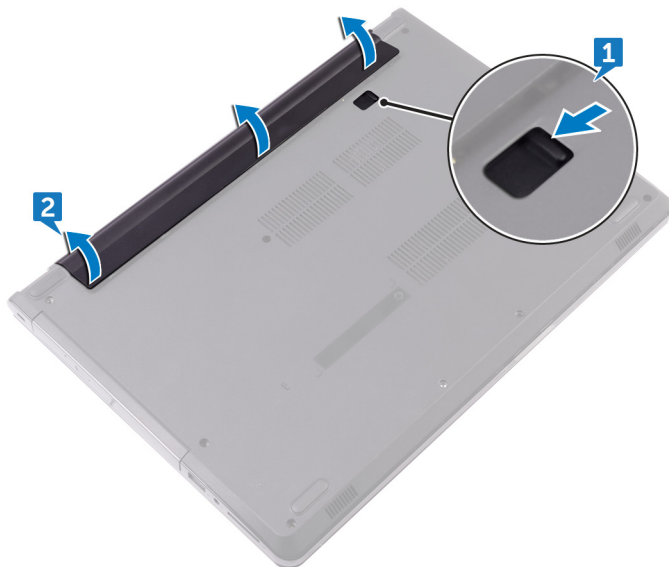
- 1** Replace all screws and ensure that no stray screws remain inside your computer.
- 2** Connect any external devices, peripherals, or cables you removed before working on your computer.
- 3** Replace any media cards, discs, or any other parts that you removed before working on your computer.
- 4** Connect your computer and all attached devices to their electrical outlets.
- 5** Turn on your computer.

Removing the battery

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Procedure

- 1 Turn the computer over and slide the battery latch to the unlock position. You can hear a click sound when the battery is unlocked.
- 2 Using your fingertips, lift the battery at an angle and remove the battery off the computer base.



- 3 Turn the computer over, open the display, and press the power button for five seconds to ground the system board.

Replacing the battery



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Procedure

Slide the tabs on the battery into the slots on the battery bay and snap the battery into place.

Removing the optical drive



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Prerequisites

Remove the [battery](#).

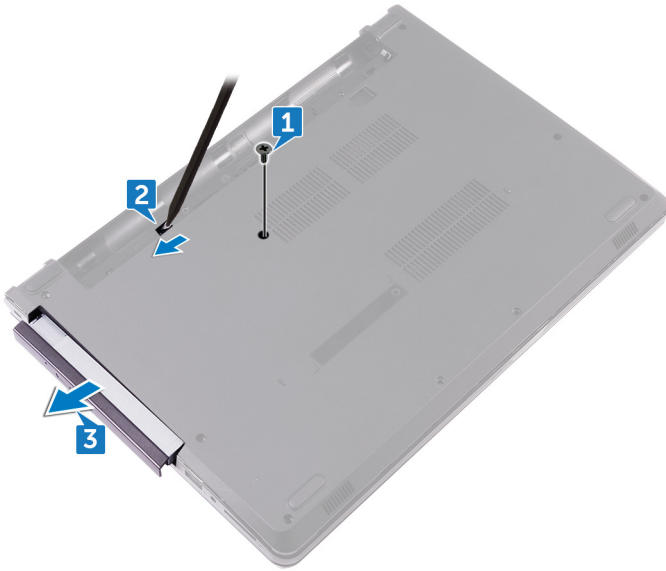
Procedure



NOTE: Applicable only for computers that are shipped with optical drive.

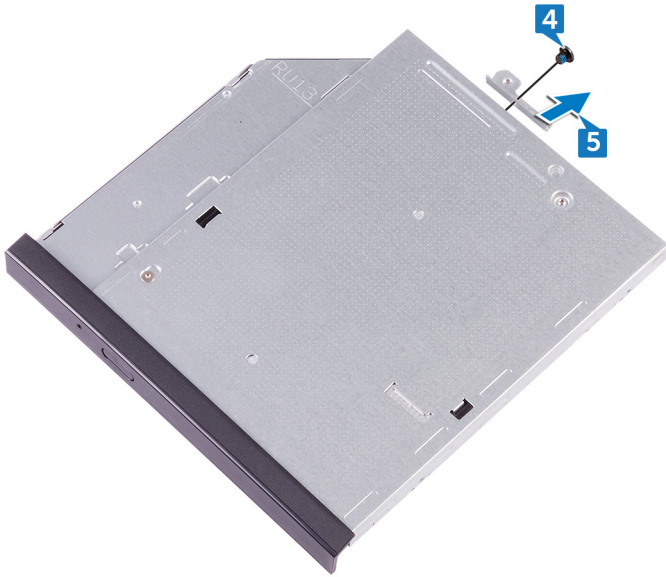
- 1 Remove the screw (M2x5) that secures the optical-drive assembly to the base cover.
- 2 Using a plastic scribe, push to release the optical-drive assembly from the optical-drive bay.

- 3 Slide and remove the optical-drive assembly out of the optical-drive bay.



- 4 Remove the screw (M2x3) that secures the optical-drive bracket to the optical drive.

- 5** Remove the optical-drive bracket.



- 6** Pull the optical-drive bezel carefully to remove it from the optical drive.



Replacing the optical drive



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Procedure



NOTE: Applicable only for computers that are shipped with optical drive.

- 1 Align the tabs on the optical-drive bezel with the slots on the optical drive and snap the optical-drive bezel into place.
- 2 Align the screw hole on the optical-drive bracket with the screw hole on the optical drive.
- 3 Replace the screw (M2x3) that secures the optical-drive bracket to the optical drive.
- 4 Slide the optical-drive assembly into the optical-drive bay and align the screw hole on the optical-drive bracket with the screw hole on the base cover.
- 5 Replace the screw (M2x5) that secures the optical-drive assembly to the base cover.

Post-requisites

Replace the [battery](#).

Removing the keyboard



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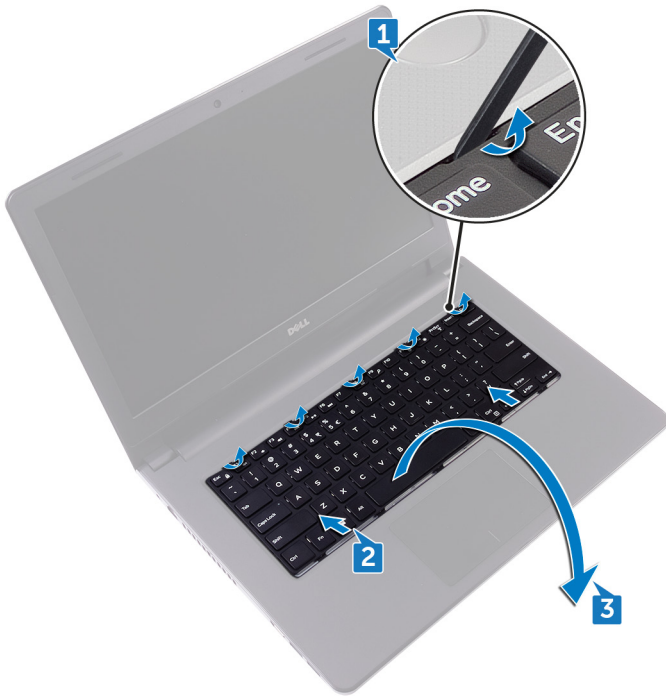
Prerequisites

Remove the [battery](#).

Procedure

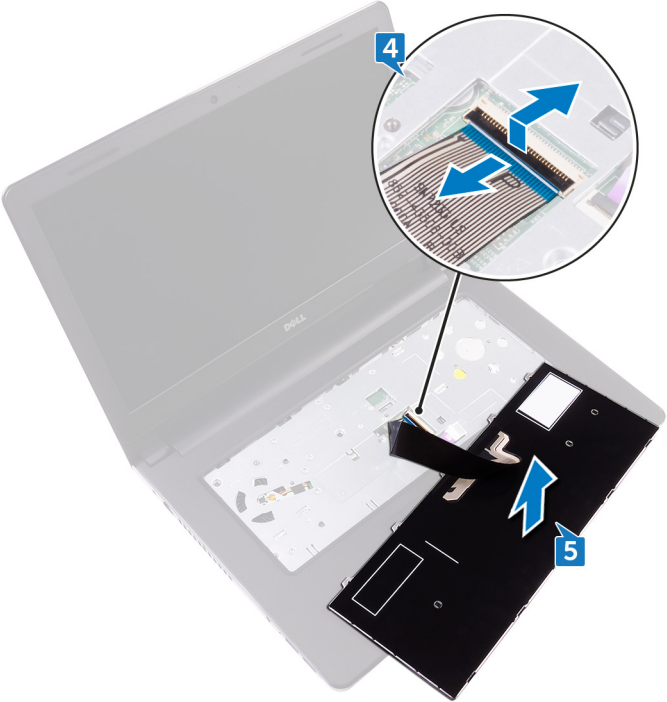
- 1 Using a plastic scribe, gently release the tabs that secure the keyboard to the palm-rest assembly.
- 2 Slide the keyboard up to release it from the slots on the palm-rest assembly.

- 3 Turn the keyboard over, and place it on the palm-rest assembly.



- 4 Open the latch, and disconnect the keyboard cable from the system board.

5 Lift the keyboard off the palm-rest assembly.



Replacing the keyboard



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Procedure



NOTE: If you are installing a new keyboard, fold the cables the same way they are folded on the old keyboard.

- 1 Slide the keyboard cable into the connector and close the latch to secure the cable.
- 2 Turn the keyboard over.
- 3 Slide the tabs on the keyboard into the slots on the palm-rest assembly and snap the keyboard into place.

Post-requisites

Replace the [battery](#).

Removing the base cover



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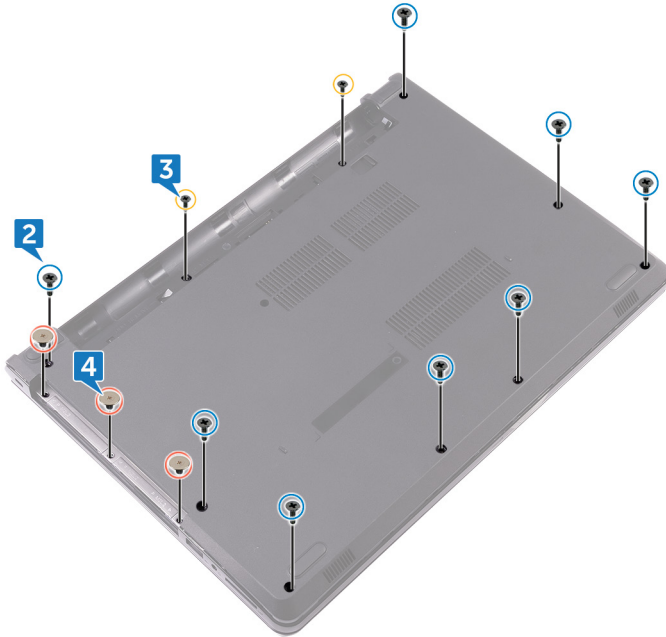
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).

Procedure

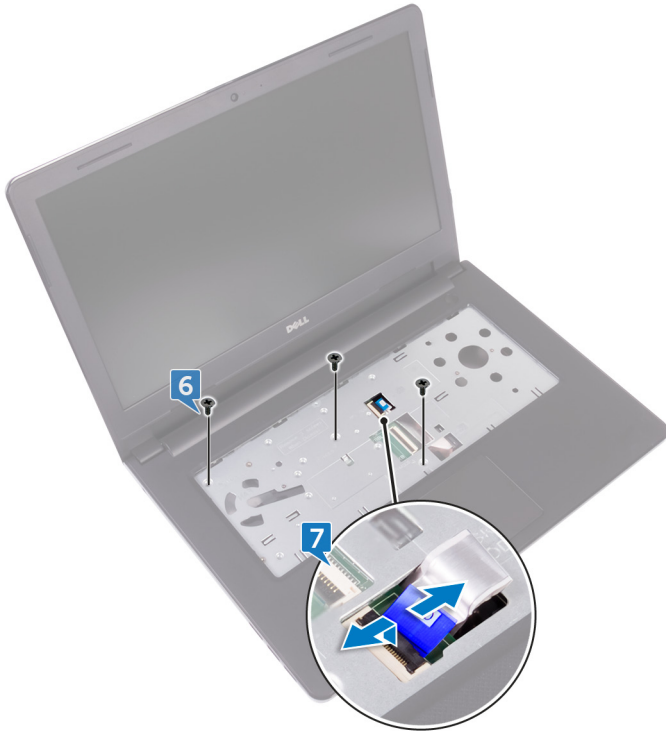
- 1 Close the display, and turn the computer over.
- 2 Remove the eight screws (M2.5x8) that secure the base cover to the palm-rest assembly.
- 3 Remove the two screws (M2x5) that secure the base cover to the palm-rest assembly.

- 4 Remove the three screws (M2x2) that secure the base cover to the palm-rest assembly.



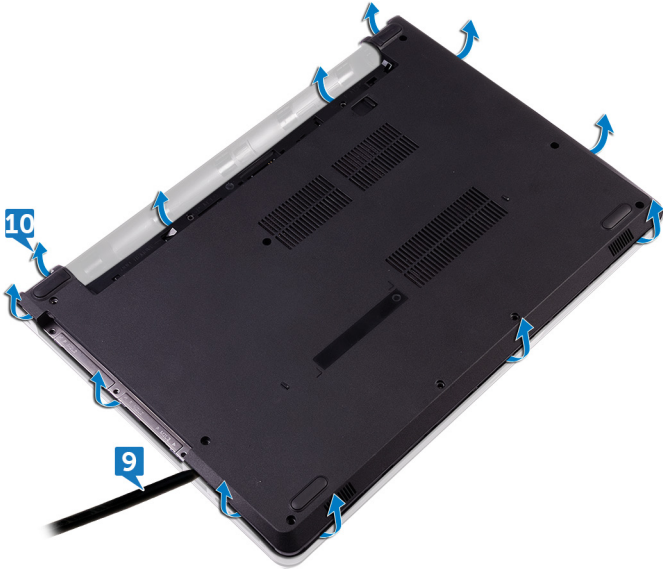
- 5 Turn the computer over, and open the display.
- 6 Remove the three screws (M2x5) that secure the computer base to the palm-rest assembly.

- 7 Open the latch, and disconnect the optical-drive cable from the system board.

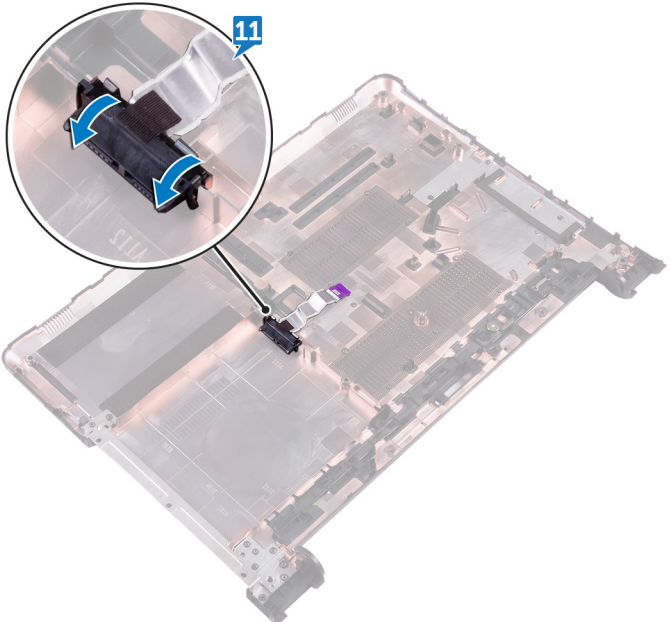


- 8 Close the display, and turn the computer over.
- 9 Using a plastic scribe, pry the base cover off the palm-rest assembly.

10 Lift the base cover off the palm-rest assembly.



11 Release the optical-drive interposer from the tabs, and remove it from the base cover.



Replacing the base cover



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Procedure

- 1 Slide the optical-drive interposer into the tabs on the base cover and snap it into place.

- 2 Place the base cover on the palm-rest assembly and route the optical-drive cable through the slot on the palm-rest assembly.



- 3 Slide the tabs on the base cover into the slots on the palm-rest assembly, and snap the base cover into place.
- 4 Slide the optical-drive cable into the connector on the system board and press down the latch to secure the cable.
- 5 Replace the three screws (M2x5) that secure the computer base to the palm-rest assembly.
- 6 Close the display, and turn the computer over.
- 7 Replace the three screws (M2x2) that secure the base cover to the palm-rest assembly.
- 8 Replace the two screws (M2x5) that secure the base cover to the palm-rest assembly.
- 9 Replace the eight screws (M2.5x8) that secure the base cover to the palm-rest assembly.

Post-requisites

- 1 Replace the [keyboard](#).
- 2 Replace the [optical drive](#).
- 3 Replace the [battery](#).

Removing the memory module



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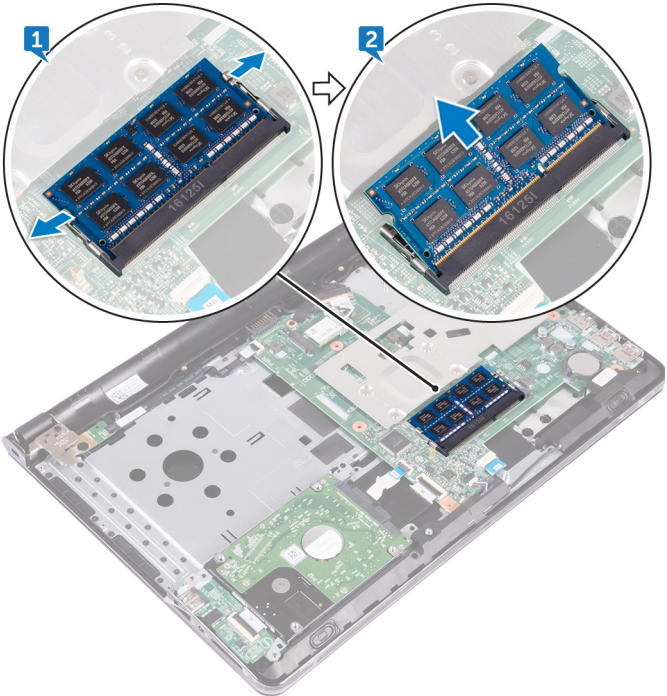
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).

Procedure

- 1 Use your fingertips to carefully spread apart the securing-clips on each end of the memory-module slot until the memory module pops up.

2 Remove the memory module from the memory-module slot.



Replacing the memory module



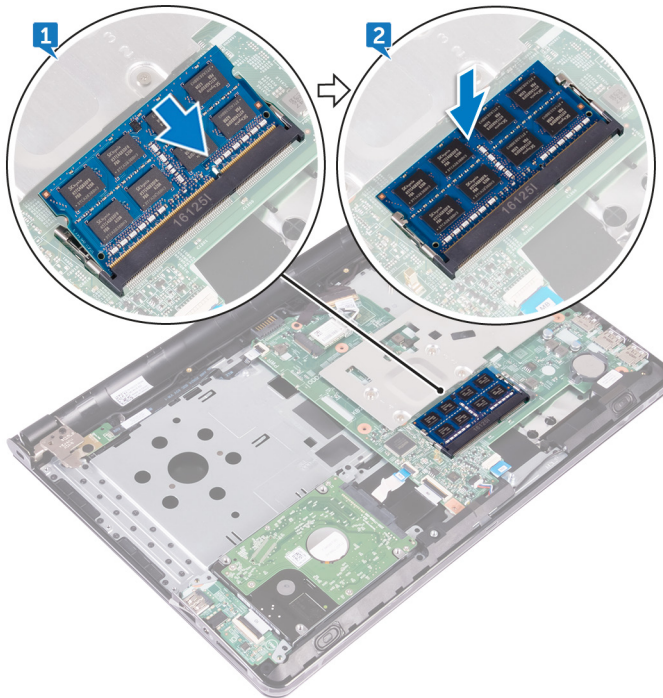
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Procedure

- 1 Align the notch on the memory module with the tab on the memory-module slot.

- 2 Slide the memory module firmly into the slot at an angle and press the memory module down until it clicks into place.


 **NOTE: If you do not hear the click, remove the memory module and reinstall it.**




Post-requisites

- 1 Replace the [base cover](#).
- 2 Replace the [keyboard](#).
- 3 Replace the [optical drive](#).
- 4 Replace the [battery](#).

Removing the hard drive

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 **CAUTION:** Hard drives are fragile. Exercise care when handling the hard drive.

 **CAUTION:** To avoid data loss, do not remove the hard drive while the computer is in sleep or on state.

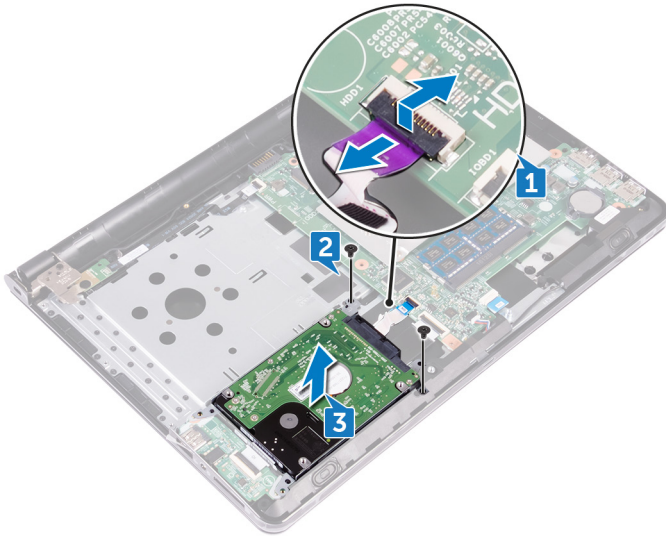
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).

Procedure

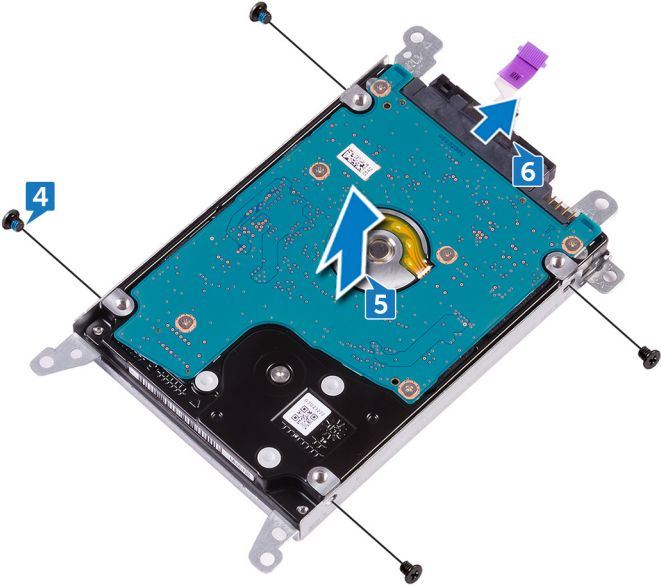
- 1 Open the latch, and disconnect the hard-drive cable from the connector on the system board.
- 2 Remove the two screws (M2x3) that secure the hard-drive assembly to the palm-rest assembly.

- 3 Lift the hard-drive assembly along with its cable off the palm-rest assembly.




- 4 Remove the four screws (M3x3) that secure the hard-drive bracket to the hard-drive assembly.
- 5 Lift the hard-drive assembly off the hard-drive bracket.

6 Disconnect the interposer from the hard drive.



Replacing the hard drive

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 **CAUTION:** Hard drives are fragile. Exercise care when handling the hard drive.

Procedure

- 1 Connect the interposer to the hard drive.
- 2 Align the screw holes on the hard-drive bracket with the screw holes on the hard-drive assembly.
- 3 Replace the four screws (M3x3) that secure the hard-drive bracket to the hard-drive assembly.
- 4 Align the screw holes on the hard-drive assembly with the screw holes on the palm rest and keyboard assembly.
- 5 Replace the two screws (M2x3) that secure the hard-drive assembly to the palm-rest assembly.
- 6 Slide the hard-drive cable into the connector on the system board and press down the latch to secure the cable.

Post-requisites

- 1 Replace the [base cover](#).
- 2 Replace the [keyboard](#).
- 3 Replace the [optical drive](#).
- 4 Replace the [battery](#).

Removing the wireless card



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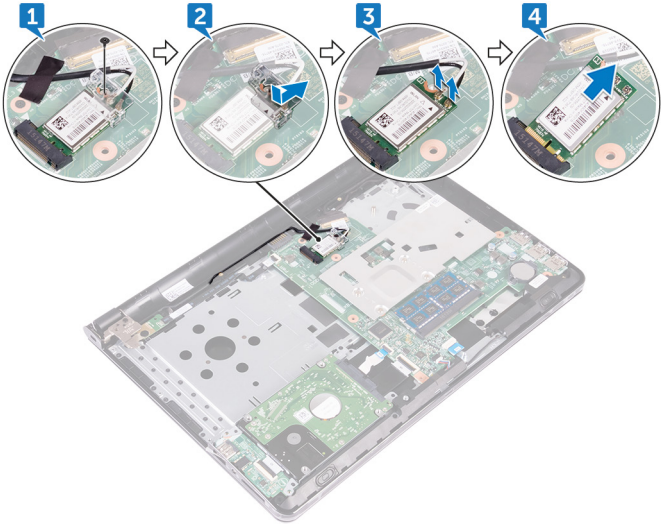
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).

Procedure

- 1 Remove the screw (M2x3) that secures the wireless-card bracket to the system board.
- 2 Slide and remove the wireless-card bracket.
- 3 Disconnect the antenna cables from the wireless card.

4 Slide and remove the wireless card from the wireless-card slot.



Replacing the wireless card



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Procedure



CAUTION: To avoid damage to the wireless card, do not place any cables under it.

- 1 Align the notch on the wireless card with the tab on the wireless-card slot and insert the wireless card at an angle into the wireless-card slot.
- 2 Connect the antenna cables to the wireless card.

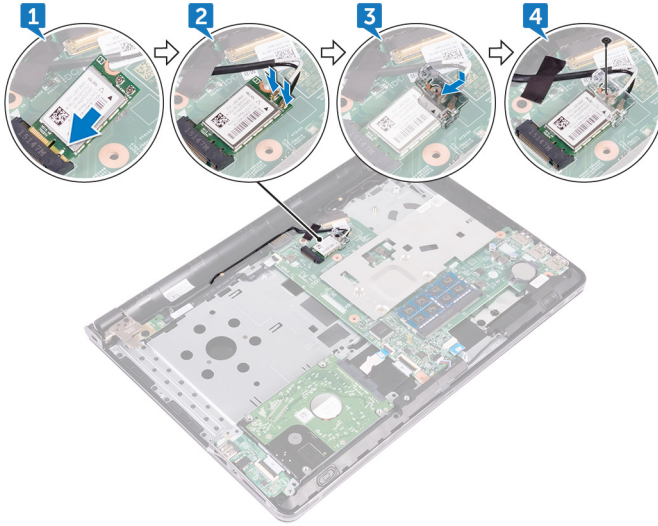
The following table provides the antenna-cable color scheme for the wireless card supported by your computer.

Table 2. Antenna cable color scheme for wireless card

Connectors on the wireless card	Antenna-cable color
Main (white triangle)	White
Auxiliary (black triangle)	Black

- 3 Slide to align the screw hole on the wireless-card bracket with the screw hole on the wireless card.

- 4 Replace the screw (M2x3) that secures the wireless-card bracket to the wireless card and the system board.



Post-requisites

- 1 Replace the [base cover](#).
- 2 Replace the [keyboard](#).
- 3 Replace the [optical drive](#).
- 4 Replace the [battery](#).

Removing the I/O board



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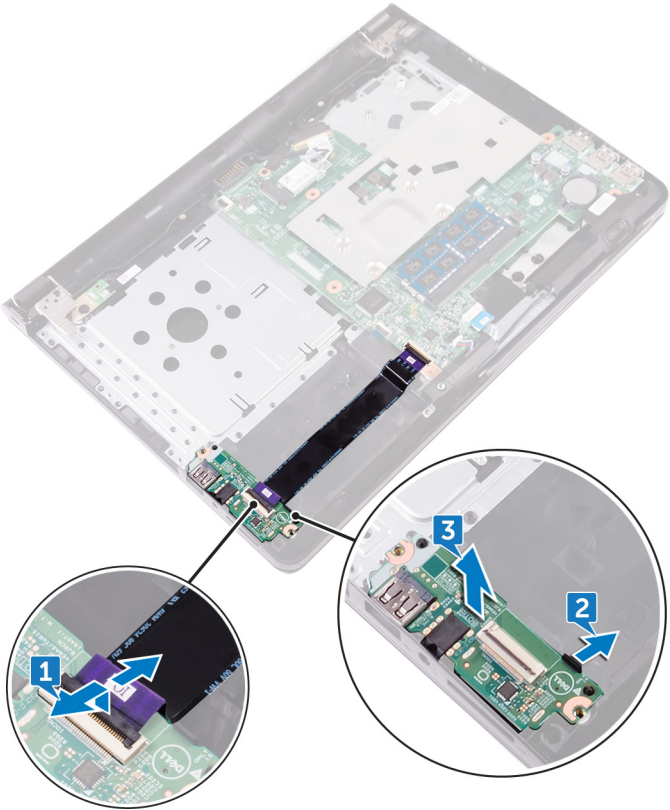
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [hard drive](#).

Procedure

- 1 Open the latch, and disconnect the I/O-board cable from the I/O board.
- 2 Push the securing tab to release the I/O board from the palm-rest assembly.

3 Lift the I/O board off the palm-rest assembly.



Replacing the I/O board



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Procedure

- 1 Using the alignment posts, place the I/O board on the palm-rest assembly and snap the I/O board into place.
- 2 Slide the I/O-board cable into the connector on the I/O board and close the latch to secure the cable.

Post-requisites

- 1 Replace the [hard drive](#).
- 2 Replace the [base cover](#).
- 3 Replace the [keyboard](#).
- 4 Replace the [optical drive](#).
- 5 Replace the [battery](#).

Removing the coin-cell battery



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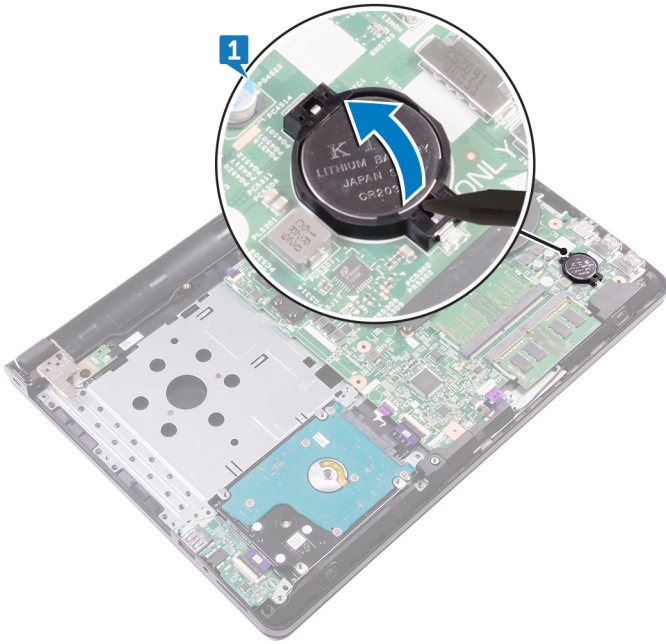
CAUTION: Removing the coin-cell battery resets the BIOS setup program's settings to default. It is recommended that you note the BIOS setup program's settings before removing the coin-cell battery.

Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).

Procedure

Using a plastic scribe, gently pry out the coin-cell battery out of the battery socket on the system board.



Replacing the coin-cell battery



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Procedure

With the positive-side facing up, snap the coin-cell battery into the battery socket on the system board.

Post-requisites

- 1 Replace the [base cover](#).
- 2 Replace the [keyboard](#).
- 3 Replace the [optical drive](#).
- 4 Replace the [battery](#).

Removing the speakers



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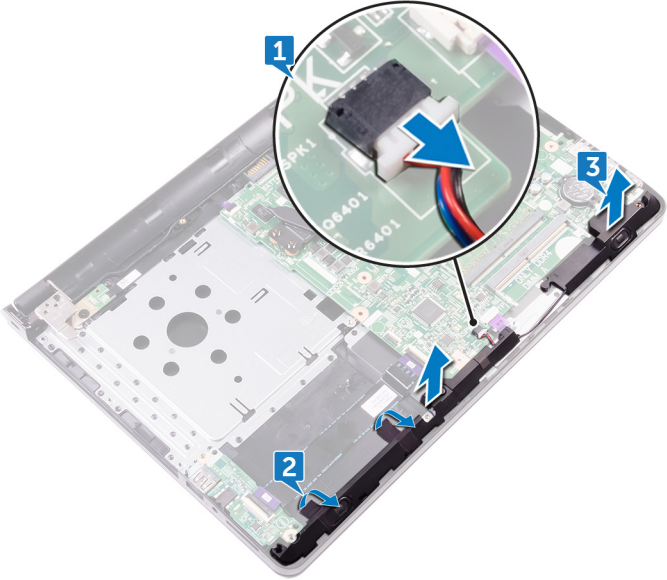
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [hard drive](#).

Procedure

- 1 Disconnect the speaker cable from the system board.
- 2 Peel the tapes that secure the speaker to the palm-rest assembly.

3 Lift the speakers, along with the speaker cable, off the palm-rest assembly.



Replacing the speakers



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Procedure

- 1 Using the alignment posts, place the speakers on the palm-rest assembly.
- 2 Adhere the tapes that secure the speakers to the palm-rest assembly.
- 3 Connect the speaker cable to the system board.


Post-requisites

- 1 Replace the [hard drive](#).
- 2 Replace the [base cover](#).
- 3 Replace the [keyboard](#).
- 4 Replace the [optical drive](#).
- 5 Replace the [battery](#).

Removing the heat sink

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 **WARNING:** The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

 **CAUTION:** For maximum cooling of the processor, do not touch the heat transfer areas on the heat sink. The oils in your skin can reduce the heat transfer capability of the thermal grease.

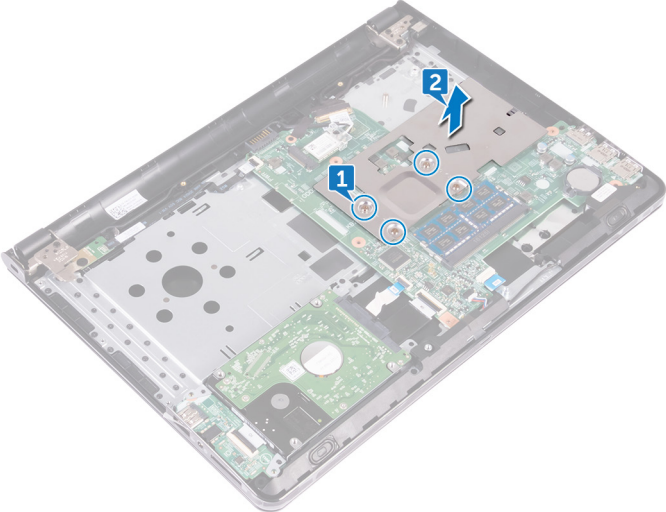
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).

Procedure

- 1 In reverse sequential order (as indicated on the heat sink), loosen the captive screws that secure the heat sink to the system board.

2 Lift the heat sink off the system board.



Replacing the heat sink



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CAUTION: Incorrect alignment of the heat sink can damage the system board and processor.



NOTE: If either the system board or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

Procedure

- 1 Place the heat sink on the system board and align the screw holes on the heat sink with the screw holes on the system board.
- 2 In sequential order (as indicated on the heat sink), tighten the captive screws that secure the heat sink to the system board.

Post-requisites

- 1 Replace the [base cover](#).
- 2 Replace the [keyboard](#).
- 3 Replace the [optical drive](#).
- 4 Replace the [battery](#).

Removing the power-button board



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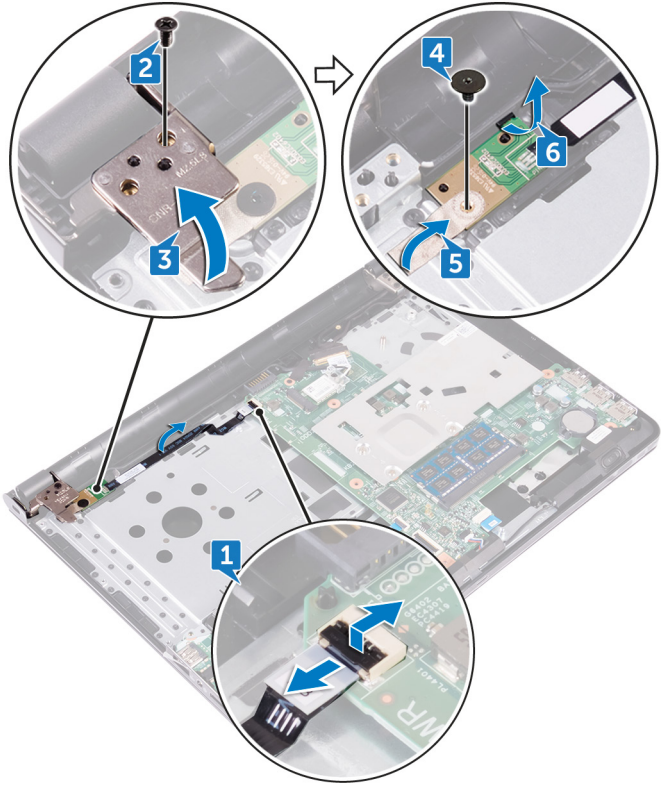
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).

Procedure

- 1 Open the latch, and disconnect the power-button board cable from the system board.
- 2 Remove the screw (M2.5x8) that secures the display hinge to the palm-rest assembly.
- 3 Lift the display hinge.
- 4 Remove the screw (M2x2) that secures the power-button board to the palm-rest assembly.
- 5 Peel the tape that secures the power-button board to the palm-rest assembly.

- 6** Release the power-button board from the tab, and lift it along with the cable off the palm-rest assembly.



Replacing the power-button board



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Procedure

- 1 Slide the power-button board under the tab on the palm-rest assembly.
- 2 Using the alignment post, place the power-button board on the palm-rest assembly.
- 3 Align the screw hole on the power-button board with the screw hole on the palm-rest assembly.
- 4 Replace the screw (M2x2) that secures the power-button board to the palm-rest assembly.
- 5 Adhere the tape that secures the power-button board to the palm-rest assembly.
- 6 Close the display hinge, and replace the screw (M2.5x8) that secures the display hinge to the palm-rest assembly.
- 7 Connect the power-button board cable to the system board.

Post-requisites

- 1 Replace the [base cover](#).
- 2 Replace the [keyboard](#).
- 3 Replace the [optical drive](#).
- 4 Replace the [battery](#).

Removing the display assembly



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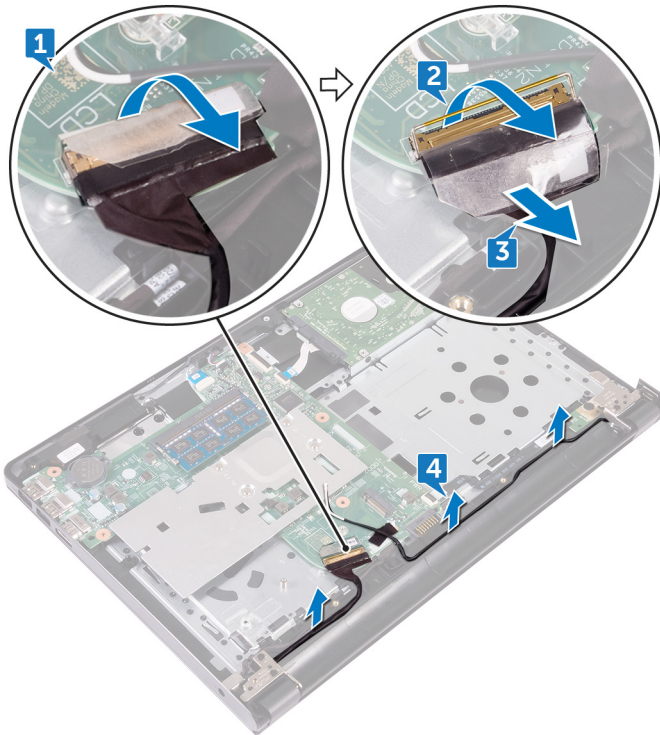
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).

Procedure

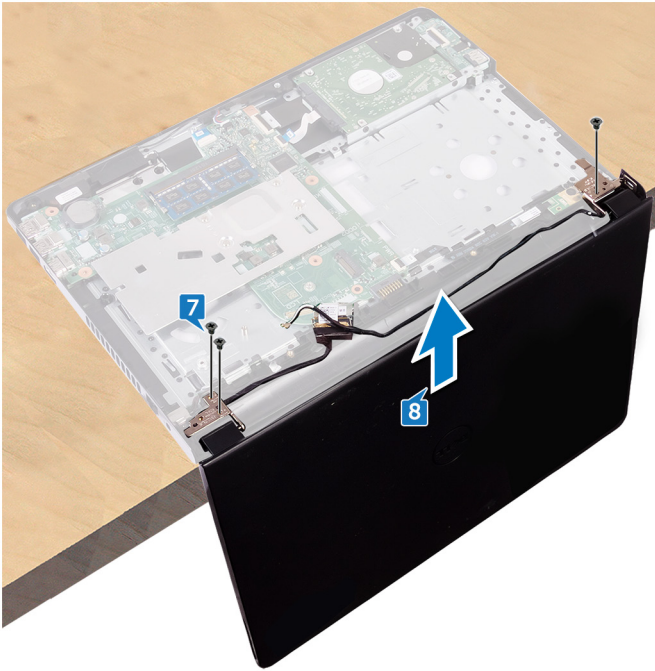
- 1 Peel the tape that adheres the display cable to the system board.
- 2 Open the latch that secures the display cable into position.
- 3 Disconnect the display cable from the system board.

- 4 Note the antenna-cable routing, and remove the antenna cable from the routing guides on the palm-rest assembly.



- 5 Turn the computer over and open the display at an angle of 90 degrees.
- 6 Turn the computer over and place it on the edge of the table in a position that allows access to the screws on the display hinges.
- 7 Remove the three screws (M2.5x8) that secure the display-hinge brackets to the palm-rest assembly.

- 8** Carefully lift the display assembly from the palm-rest assembly.



- 9** Carefully place the display assembly on a clean and flat surface.

Replacing the display assembly



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Procedure

- 1 Place the palm-rest assembly at the edge of the table.
- 2 Align the screw holes on the palm-rest assembly with the screw holes on the display hinges.
- 3 Replace the three screws (M2.5x8) that secure the display hinges to the palm-rest assembly.
- 4 Route the antenna cables through the routing guides on the palm-rest assembly.
- 5 Connect the display cable from the system board.
- 6 Close the latch that secures the display cable to the system board.
- 7 Adhere the tape that secures the display cable to the system board.

Post-requisites

- 1 Replace the [wireless card](#).
- 2 Replace the [base cover](#).
- 3 Replace the [keyboard](#).
- 4 Replace the [optical drive](#).
- 5 Replace the [battery](#).

Removing the display bezel



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Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [display assembly](#).

Procedure

- 1 Using your fingertips, carefully pry up the inside edge of the display bezel.

2 Remove the display bezel off the display back-cover and antenna assembly.



Replacing the display bezel



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Procedure

Align the display bezel with the display back-cover and antenna assembly, and gently snap the display bezel into place.

Post-requisites

- 1 Replace the [display assembly](#).
- 2 Replace the [wireless card](#).
- 3 Replace the [base cover](#).
- 4 Replace the [keyboard](#).
- 5 Replace the [optical drive](#).
- 6 Replace the [battery](#).

Removing the display panel



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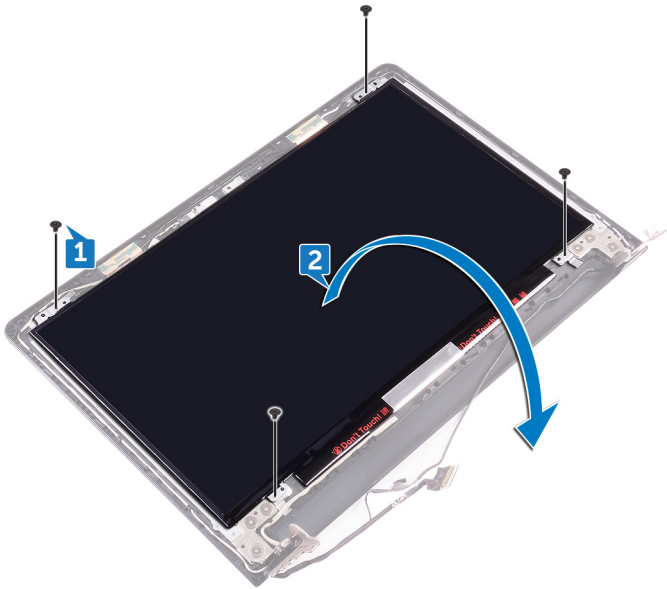
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [display assembly](#).
- 7 Remove the [display bezel](#).

Procedure

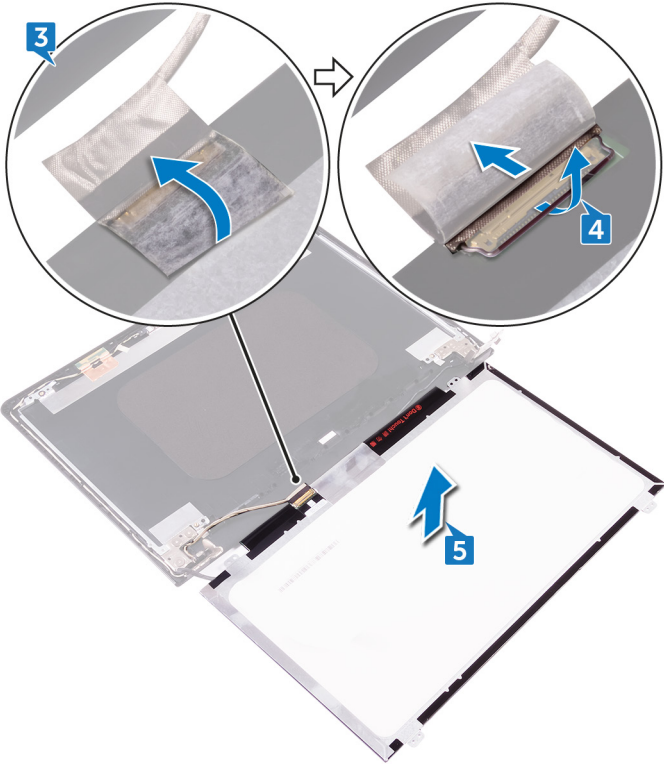
- 1 Remove the four screws (M2x3) that secure the display panel to the display back-cover and antenna assembly.

- 2 Lift the display panel gently, and turn it over.



- 3 Peel the tape that secures the display cable to the display back-cover and antenna assembly.
- 4 Lift the latch, and disconnect the display cable from the display panel.

5 Lift the display panel away from the display back-cover and antenna assembly.



Replacing the display panel



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Procedure

- 1 Connect the display cable to the display-panel connector on the display panel.
- 2 Close the latch, and adhere the tape that secures the display cable to the display back-cover and antenna assembly.
- 3 Place the display panel gently on the display back-cover and antenna assembly.
- 4 Align the screw holes on the display panel with the screw holes on the display back-cover and antenna assembly.
- 5 Replace the four screws (M2x3) that secure the display panel to the display back-cover and antenna assembly.

Post-requisites

- 1 Replace the [display bezel](#).
- 2 Replace the [display assembly](#).
- 3 Replace the [wireless card](#).
- 4 Replace the [base cover](#).
- 5 Replace the [keyboard](#).
- 6 Replace the [optical drive](#).
- 7 Replace the [battery](#).

Removing the camera



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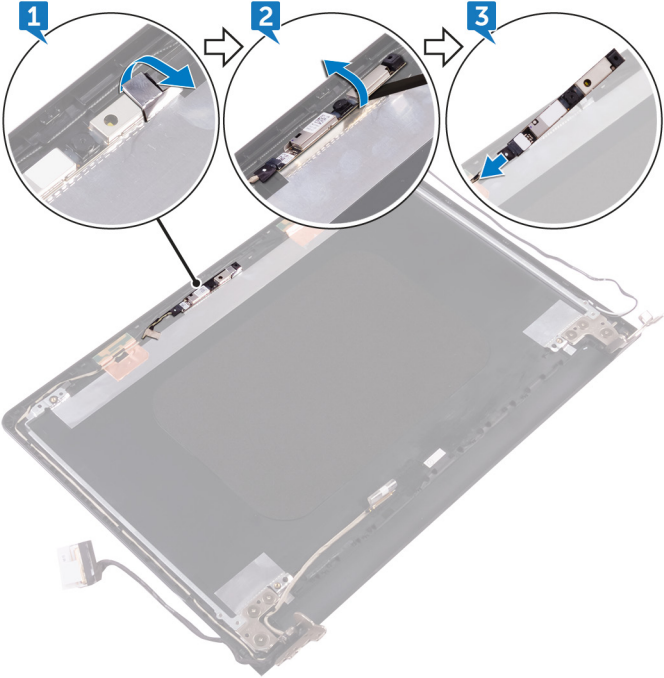
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [display assembly](#).
- 7 Remove the [display bezel](#).
- 8 Remove the [display panel](#).

Procedure

- 1 Peel off the foil from the camera module.
- 2 Using a plastic scribe, pry the camera module, and then lift the camera module at an angle.

3 Disconnect the camera cable from the camera module.



Replacing the camera



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Procedure

- 1 Connect the camera cable to the camera module.
- 2 Using the alignment post, place the camera on the display back-cover and antenna assembly.
- 3 Adhere the foil to the camera module.

Post-requisites

- 1 Replace the [display panel](#).
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).
- 6 Replace the [keyboard](#).
- 7 Replace the [optical drive](#).
- 8 Replace the [battery](#).

Removing the display hinges



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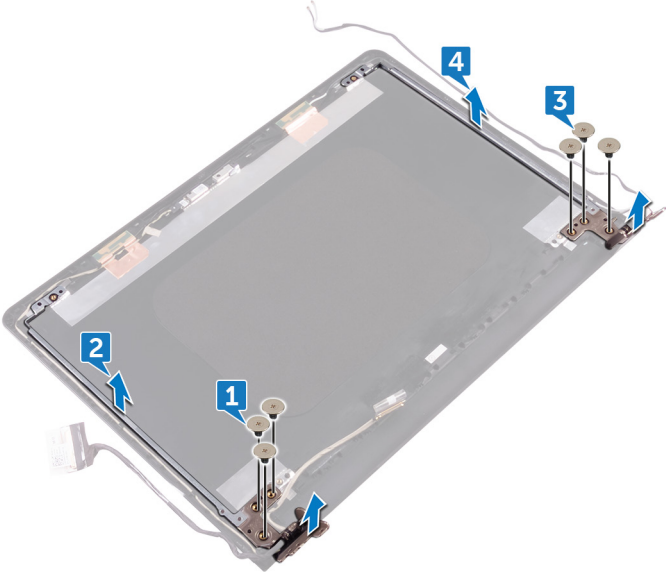
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [display assembly](#).
- 7 Remove the [display bezel](#).
- 8 Remove the [display panel](#).

Procedure

- 1 Remove the three screws (M2.5x2.5) that secure the left display hinge to the display back-cover and antenna assembly.
- 2 Lift the left display hinge off the display back-cover and antenna assembly.
- 3 Remove the three screws (M2.5x2.5) that secure the right display hinge to the display back-cover and antenna assembly.

4 Lift the right display hinge off the display back-cover and antenna assembly.



Replacing the display hinges



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Procedure

- 1 Align the screw holes on the display hinges with the screw holes on the display back-cover and antenna assembly.
- 2 Replace the six (M2.5x2.5) screws that secure the display hinges to the display back-cover and antenna assembly.

Post-requisites

- 1 Replace the [display panel](#).
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).
- 6 Replace the [keyboard](#).
- 7 Replace the [optical drive](#).
- 8 Replace the [battery](#).

Removing the display cable



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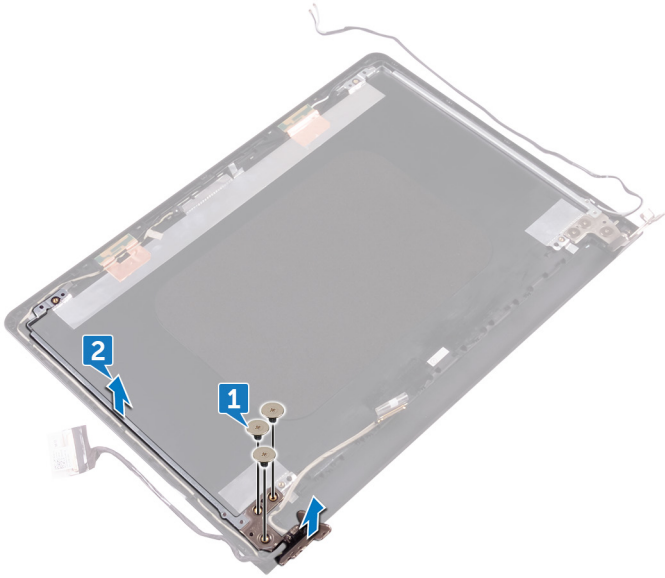
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [display assembly](#).
- 7 Remove the [display bezel](#).
- 8 Remove the [display panel](#).
- 9 Remove the [camera](#).

Procedure

- 1 Remove the three screws (M2.5x2.5) that secure the left display hinge to the display back-cover and antenna assembly.

- 2 Lift the left display hinge off the display back-cover and antenna assembly.



- 3 Note the display cable routing, and remove the display cable from the routing guides on the display back-cover and antenna assembly.

4 Remove the display cable off the display back-cover and antenna assembly.



Replacing the display cable



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Procedure

- 1 Route the display cable through the routing guides on the display back-cover and antenna assembly.
- 2 Place the left display hinge on the display back-cover and antenna assembly.
- 3 Replace the three screws (M2.5x2.5) that secure the left display hinge to the display back-cover and antenna assembly.

Post-requisites

- 1 Replace the [camera](#).
- 2 Replace the [display panel](#).
- 3 Replace the [display bezel](#).
- 4 Replace the [display assembly](#).
- 5 Replace the [wireless card](#).
- 6 Replace the [base cover](#).
- 7 Replace the [keyboard](#).
- 8 Replace the [optical drive](#).
- 9 Replace the [battery](#).

Removing the system board



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NOTE: Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.



NOTE: Replacing the system board removes any changes you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.



NOTE: Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect the cables correctly after you replace the system board.

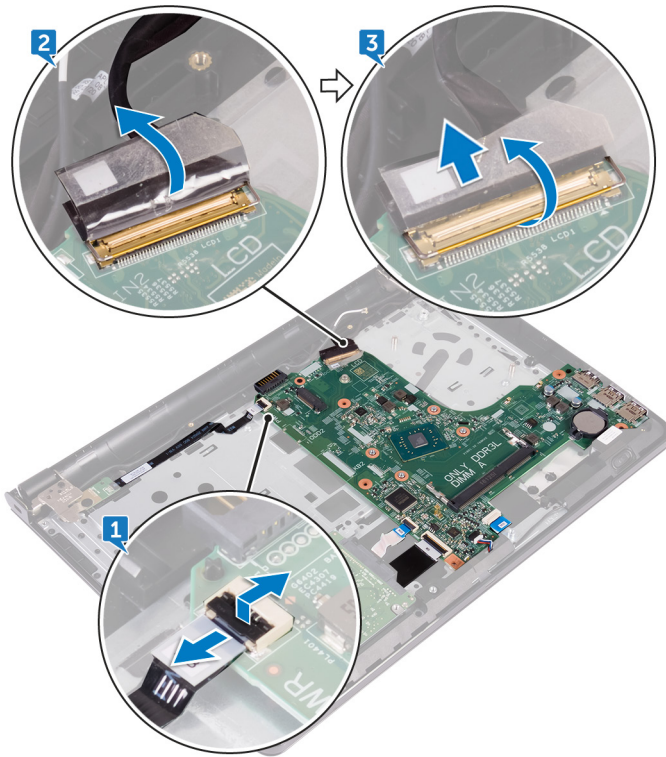
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [heat sink](#).

Procedure

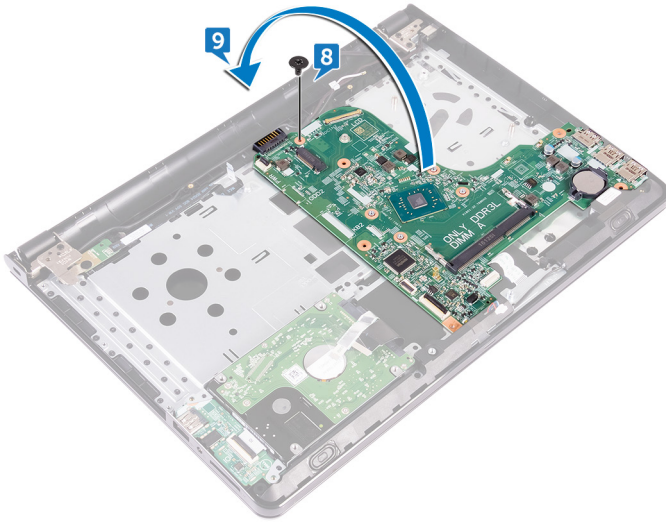
- 1 Open the latch, and disconnect the power-button board cable from the system board.
- 2 Peel the tape adhering the display cable to the system board.

- 3 Open the latch, and disconnect the display cable from the system board.



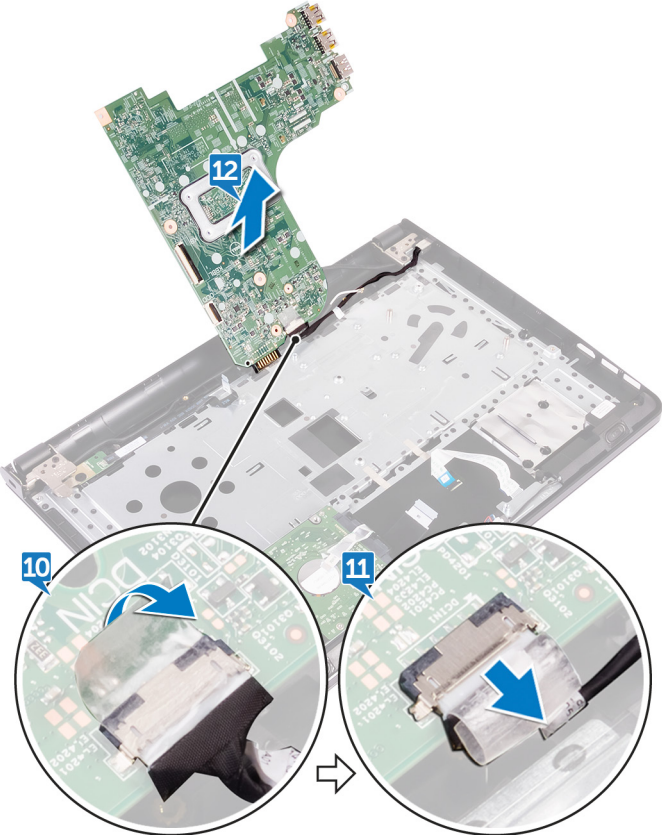
- 4 Open the latch, and disconnect the hard-drive cable from the system board.
- 5 Open the latch, and disconnect the I/O-board cable from the system board.
- 6 Disconnect the speaker cable from the system board.
- 7 Open the latch, and disconnect the touch-pad cable from the system board.
- 8 Remove the screw (M2x3) that secures the system board to the palm-rest assembly.

- 9 Gently release the ports on the system board from the slots and carefully turn the system board over.



- 10 Peel the tape that secures the power-adaptor port cable to the system board.
- 11 Disconnect the power-adaptor port cable from the system board.

12 Lift the system board off the palm-rest assembly.



Replacing the system board



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NOTE: Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.



NOTE: Replacing the system board removes any changes you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.

Procedure

- 1 Connect the power-adaptor port cable to the system board.
- 2 Adhere the tape that secures the power-adaptor port cable to the system board.
- 3 Turn the system board over carefully.
- 4 Using the alignment post, place the system board on the palm-rest assembly.
- 5 Align the screw hole on the system board with the screw hole on the palm-rest assembly.
- 6 Replace the screw (M2x3) that secures the system board to the palm-rest assembly.
- 7 Slide the touch-pad cable into the system-board connector and close the latch to secure the cable.
- 8 Connect the speaker cable to the system board.
- 9 Slide the I/O-board cable, and hard-drive cable into their connectors on the system board and close the latches to secure the cables.
- 10 Slide the display cable into the connector on the system board and close the latch.
- 11 Adhere the tape that secures the display cable to the system board.

- 12 Slide the power-button board cable into the connector on the system board, and close the latch.

Post-requisites

- 1 Replace the [heat sink](#).
- 2 Replace the [wireless card](#).
- 3 Replace the [base cover](#).
- 4 Replace the [keyboard](#).
- 5 Replace the [optical drive](#).
- 6 Replace the [battery](#).

Removing the touchpad



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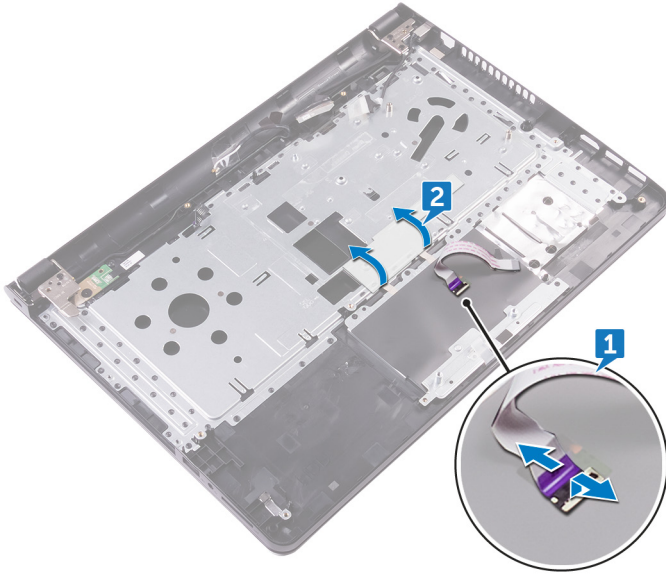
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [hard drive](#).
- 6 Remove the [wireless card](#).
- 7 Remove the [I/O board](#).
- 8 Remove the [display assembly](#).
- 9 Remove the [system board](#).
- 10 Remove the [speakers](#).

Procedure

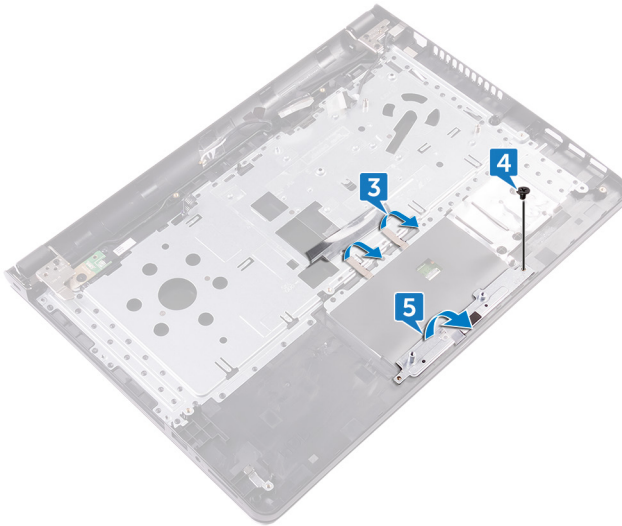
- 1 Open the latch, and disconnect the touch-pad cable from the touch pad.

- 2 Lift the transparent film on the palm-rest assembly.

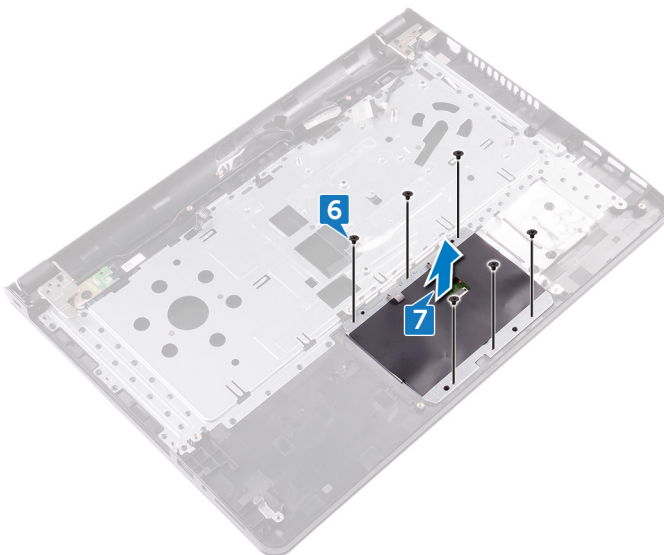


- 3 Peel the tapes that secure the touch-pad board to the palm-rest assembly.
- 4 Remove the screw (M2x3) that secures the touch-pad bracket to the palm-rest assembly.

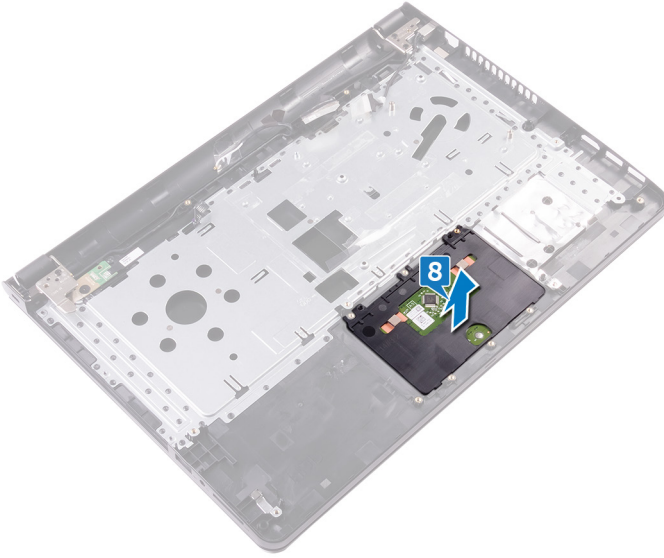
- 5 Release the touch-pad bracket from the tab, and lift it at an angle.



- 6 Remove the six screws (M2x3) that secure the touch-pad board to the palm-rest assembly.
- 7 Lift the touch-pad board off the palm-rest assembly.



- 8 Lift the touch pad off the palm-rest assembly.



Replacing the touchpad



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Procedure

- 1 Slide and replace the touch pad into its slot on the palm-rest assembly.
- 2 Align the screw holes on the touch-pad board with the screw holes on the palm-rest assembly.
- 3 Replace the six screws (M2x3) that secure the touch-pad board to the palm-rest assembly.
- 4 Slide the touch-pad bracket at an angle and align the screw hole on the touch-pad bracket with the screw hole on the palm-rest assembly.
- 5 Replace the screw (M2x3) that secures the touch-pad bracket to the palm-rest assembly.
- 6 Adhere the tapes that secure the touch-pad board to the palm-rest assembly and cover the tapes with the transparent film.
- 7 Connect the touch-pad cable to its connector and close the latch.

Post-requisites

- 1 Replace the [speakers](#).
- 2 Replace the [system board](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [I/O board](#).
- 5 Replace the [hard drive](#).
- 6 Replace the [wireless card](#).
- 7 Replace the [base cover](#).
- 8 Replace the [keyboard](#).

- 9 Replace the [optical drive](#).
- 10 Replace the [battery](#).

Removing the power-adapter port



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

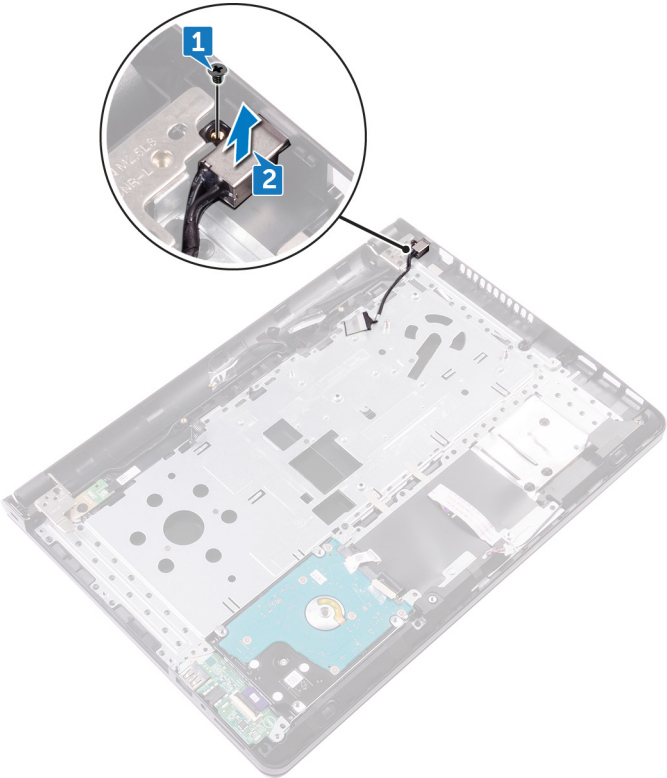
Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [display assembly](#).
- 7 Remove the [power-button board](#).
- 8 Remove the [system board](#).

Procedure

- 1 Remove the screw (M2x3) that secures the power-adapter port to the palm-rest assembly.

2 Lift the power-adapter port along with its cable off the palm-rest assembly.



Replacing the power-adapter port



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Procedure

- 1 Align the screw hole on the power-adapter port with the screw hole on the palm-rest assembly.
- 2 Replace the screw (M2x3) that secures the power-adapter port to the palm-rest assembly.

Post-requisites

- 1 Replace the [system board](#).
- 2 Replace the [power-button board](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).
- 6 Replace the [keyboard](#).
- 7 Replace the [optical drive](#).
- 8 Replace the [battery](#).

Removing the display back-cover and antenna assembly



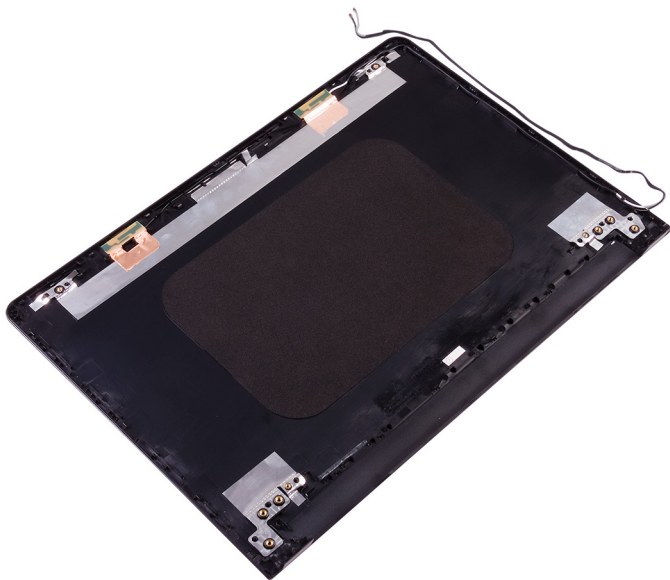
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [display assembly](#).
- 6 Remove the [display bezel](#).
- 7 Remove the [display panel](#).
- 8 Remove the [camera](#).
- 9 Remove the [display hinges](#).
- 10 Remove the [display cable](#).

Procedure

After performing all the prerequisites, we are left with the display back-cover and antenna assembly.



Replacing the display back-cover and antenna assembly



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Procedure

Place the display back-cover on a flat surface.

Post-requisites

- 1 Replace the [camera](#).
- 2 Replace the [display cable](#).
- 3 Replace the [display hinges](#).
- 4 Replace the [display panel](#).
- 5 Replace the [display bezel](#).
- 6 Replace the [display assembly](#).
- 7 Replace the [base cover](#).
- 8 Replace the [keyboard](#).
- 9 Replace the [optical drive](#).
- 10 Replace the [battery](#).

Removing the palm rest



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Prerequisites

- 1 Remove the [battery](#).
- 2 Remove the [optical drive](#).
- 3 Remove the [keyboard](#).
- 4 Remove the [base cover](#).
- 5 Remove the [hard drive](#).
- 6 Remove the [wireless card](#).
- 7 Remove the [I/O board](#).
- 8 Remove the [speakers](#).
- 9 Remove the [heat sink](#).
- 10 Remove the [touch pad](#).
- 11 Remove the [power-button board](#).
- 12 Remove the [system board](#).
- 13 Remove the [power-adaptor port](#).

Procedure

After performing the steps in prerequisites, we are left with the palm rest.



Replacing the palm rest



WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.

Procedure

Place the palm rest on a flat surface.

Post-requisites

- 1 Replace the [power-adapter port](#).
- 2 Replace the [system board](#).
- 3 Replace the [power-button board](#).
- 4 Replace the [touch pad](#).
- 5 Replace the [heat sink](#).
- 6 Replace the [speakers](#).
- 7 Replace the [I/O board](#).
- 8 Replace the [wireless card](#).
- 9 Replace the [hard drive](#).
- 10 Replace the [base cover](#).
- 11 Replace the [keyboard](#).
- 12 Replace the [optical drive](#).
- 13 Replace the [battery](#).

Downloading drivers

Downloading the audio driver

- 1 Turn on your computer.
- 2 Go to www.dell.com/support.
- 3 Click or tap **Product support**, enter the Service Tag of your computer, and then click or tap **Submit**.



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

- 4 Click or tap **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page and expand **Audio**.
- 6 Click or tap **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 or double-tap the audio driver file icon and follow the instructions on the screen to install the driver.

Downloading the graphics driver

- 1 Turn on your computer.
- 2 Go to www.dell.com/support.
- 3 Click or tap **Product support** enter the Service Tag of your computer, and then click or tap **Submit**.



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

- 4 Click or tap **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page and expand **Video**.
- 6 Click or tap **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 or double-tap the graphics driver file icon and follow the instructions on the screen.

Downloading the USB 3.0 driver

- 1 Turn on your computer.
- 2 Go to www.dell.com/support.
- 3 Click or tap **Product support** enter the Service Tag of your computer, and then click or tap **Submit**.



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

- 4 Click or tap **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page and expand **Chipset**.
- 6 Click or tap **Download** to download the USB 3.0 driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the USB 3.0 driver file.
- 8 Double-click or double-tap the driver file icon and follow the instructions on screen.

Downloading the Wi-Fi driver

- 1 Turn on your computer.
- 2 Go to www.dell.com/support.
- 3 Click or tap **Product support** enter the Service Tag of your computer, and then click or tap **Submit**.




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


- 4 Click or tap **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page and expand **Network**.
- 6 Click or tap **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 or double-tap the driver file icon and follow the on-screen instructions to install the driver.

Downloading the media-card reader driver

- 1 Turn on your computer.

- 2 Go to 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 Scroll down the page, and expand **Chipset**.
- 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.

Downloading the chipset driver

- 1 Turn on your computer.
- 2 Go to www.dell.com/support.
- 3 Click or tap **Product support**, enter the Service Tag of your computer, and then click or tap **Submit**.
 **NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.**
- 4 Click or tap **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page and expand **Chipset**.
- 6 Click or tap **Download** to download the chipset driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the chipset driver file.
- 8 Double-click or double-tap the chipset driver file icon and follow the instructions on the screen.

System setup

 **NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not be displayed.**

Boot Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable Drive (if available)
- STXXXX Drive

 **NOTE: XXX denotes the SATA drive number.**


- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

 **NOTE: Choosing Diagnostics, will display the ePSA diagnostics screen.**


The boot sequence screen also displays the option to access the System Setup screen.

Navigation keys

 **NOTE: For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the system.**

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.
	 NOTE: For the standard graphics browser only.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

BIOS overview

 **CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.**

 **NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.**

Use the BIOS Setup program for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the size of the hard drive.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enabling or disabling base devices.

Entering BIOS setup program

- 1 Turn on (or restart) your computer.

- 2 During POST, when the DELL logo is displayed, watch for the F2 prompt to appear, and then press F2 immediately.



NOTE: The F2 prompt indicates that the keyboard is initialized. This prompt can appear very quickly, so you must watch for it, and then press F2. If you press F2 before the F2 prompt, this keystroke is lost. If you wait too long and the operating system logo appears, continue to wait until you see the desktop. Then, turn off your computer and try again.

System setup options



NOTE: Depending on your computer and its installed devices, the items listed in this section may or may not appear.

Table 3. System setup options—Main menu



Main	
System Time	Displays the current time in hh:mm:ss format.
System Date	Displays the current date in mm/dd/yyyy format.
BIOS Version	Displays the BIOS version.
Product Name	Displays the model number of your computer.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer.
CPU Type	Displays the processor type.
CPU Speed	Displays the processor speed.
CPU ID	Displays the processor identification code.
CPU Cache	
L1 Cache	Displays the processor L1 cache size.
L2 Cache	Displays the processor L2 cache size.

Main

First HDD	Displays the type of hard drive installed.
SATA ODD	Displays the type of optical drive installed.
AC Adapter Type	Displays the type of AC adapter.
System Memory	Displays the size of memory installed.
Memory Speed	Displays the speed of memory.

Table 4. System setup options—Advanced menu

Advanced

Virtualization	Allows you to enable or disable the Intel Virtualization technology. Default: Enabled
USB Emulation	Allows you to enable or disable the USB emulation feature. This feature defines how the BIOS, in the absence of a USB-aware operating system, handles USB devices. USB emulation is always enabled during POST.  NOTE: You cannot boot any type of USB device (floppy, hard drive, or memory key) when this option is off. Default: Enabled
USB Wake Support	Allows you to enable USB devices to wake the computer from standby or to disable the USB wake support feature.  NOTE: If USB PowerShare is enabled, a device connected to the USB PowerShare connector may not wake the computer. Default: Disabled
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard drive controller.

Advanced

	Default: AHCI
Adapter Warnings	Allows you to choose if the computer should display warning messages when you use AC adapters that are not supported by your computer. Default: Enabled
Function Key Behavior	Allows you to set function key or multimedia key as the default function key behavior. Default: Multimedia key
Battery Health	Displays the battery health.
Intel (R) Software Guard Extensions	
Intel SGX Enable	Enable or disable Intel Software Guard Extensions.
Enclave Memory Size	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.
PRMRR Size	Set the PRMRR size.
BIOS Recovery from Hard Drive	Enable the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive. Default: Enabled
BIOS Auto-Recovery	BIOS auto-recovery automatically recovers BIOS without user actions. Default: Disabled
BIOS Recovery Optimization	Allows you to enable or disable the BIOS recovery optimization. Default: Enabled
Always Perform Integrity Check	
SupportAssist System Resolution	
Auto OS Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution

Advanced

	Console and for the Dell OS Recovery tool. Default: 2
SupportAssist OS Recovery	Enable or disable the boot flow for the SupportAssist OS Recovery tool in the even of certain system errors. Default: Disabled
Battery Charge Configuration	Set the battery charge settings with a preselected custom charge start and stop. Default: Adaptive
Advanced Battery Charge Configuration	Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period. Default: Disabled

Table 5. System setup options—Security menu

Security

Unlock Setup Status	Displays if the setup status is unlocked.
Admin Password Status	Displays if the administrator password is clear or set. Default: Not set
System password Status	Displays if the system password is clear or set. Default: Not set
HDD Password Status	Displays if the HDD password is clear or set. Default: Not set.
Asset Tag	Set your system's Asset Tag.
Admin Password	Allows you to set the administrator password. The administrator password controls access to the system setup utility.
System Password	Allows you to set the system password. The system password

Security

	controls access to the computer at boot.
HDD password	Allows you to set, change, or delete the hard-disk drive password.
Password Change	Allows you to permit or deny system password or HDD password changes. Default: Permitted
Password Bypass	Bypass the System (Boot) Password and the internal HDD password prompts during a system restart.
Computrace	Enable or disable the BIOS module interface of the optional Computrace Service from Absolute Software.
Firmware TPM	Enable or disable the firmware TPM. Default: Enabled.
PPI Bypass for Clear Command	Enable or disable PPI Bypass for Clear Command. Default: Enabled.
UEFI Firmware Capsule Updates	Enable or disable BIOS updates through UEFI capsule update packages. Default: Enabled.

Table 6. System setup options—Boot menu

Boot

Boot List Option	Displays the available boot options. Default: Legacy.
File Browser Add Boot Option	Allows to add the boot options.
File Browser Del Boot Option	Allows to delete the boot options
Secure Boot	Enable or disable the secure boot feature.
Boot Option Priorities	Displays the boot sequence.

Boot

Boot Option #1	Displays the available first boot option.
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Table 7. System setup options—Exit menu

Exit

Save Changes and Reset	Allows you to exit system setup and save your changes.
Discard Changes and Reset	Allows you to exit system setup and load previous values for all system setup options.
Restore Defaults	Allows you to restore default values for all system setup options.
Discard Changes	Allows you to load previous values for all system setup options.
Save Changes	Allows you to save the changes for all system setup options.

Troubleshooting

Flashing the BIOS

You may need to flash (update) the BIOS when an update is available or when you replace the system board.

Follow these steps to flash the BIOS:

- 1 Turn on your computer.
- 2 Go to 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.

Flashing BIOS (USB key)

- 1 Follow the procedure from step 1 to step 7 in "[Flashing the BIOS](#)" to download the latest BIOS setup program file.
- 2 Create a bootable USB drive. For more information see the knowledge base article [SLN143196](#) at www.dell.com/support.
- 3 Copy the BIOS setup program file to the bootable USB drive.
- 4 Connect the bootable USB drive to the computer that needs the BIOS update.
- 5 Restart the computer and press **F12** when the Dell logo is displayed on the screen.
- 6 Boot to the USB drive from the **One Time Boot Menu**.
- 7 Type the BIOS setup program filename and press **Enter**.


- 8 The **BIOS Update Utility** appears. Follow the instructions on the screen to complete the BIOS update.

Enhanced Pre-Boot System Assessment (ePSA) diagnostics

 **CAUTION: Use the ePSA diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.**

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

 **NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.**

For more information, see [Dell ePSA Diagnostic 3.0](#).

Running the ePSA diagnostics

- 1 Turn on your computer.
- 2 As the computer boots, press the F12 key as the Dell logo appears.
- 3 On the boot menu screen, select the **Diagnostics** option.
- 4 Click the arrow at the bottom left corner.
Diagnostics front page is displayed.
- 5 Click the arrow in the lower-right corner to go to the page listing.
The items detected are listed.
- 6 To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.

- 7 Select the device from the left pane and click **Run Tests**.
- 8 If there are any issues, error codes are displayed.
Note the error code and validation number and contact Dell.

Diagnostics

Power and battery-status light/hard-drive activity light

Indicates the battery-charge status or the hard-drive activity.



NOTE: Press Fn+H to toggle this light between power and battery-status light and hard-drive activity light.

Hard-drive activity light

Turns on when the computer reads from or writes to the hard drive.

Power and battery-status light

Indicates the power and battery-charge status.

Solid white — Power adapter is connected and the battery has more than 5 percent charge.

Amber — Computer is running on battery and the battery has less than 5 percent charge.

Off

- Power adapter is connected and the battery is fully charged.
- Computer is running on battery and the battery has more than 5 percent charge.
- Computer is in sleep state, hibernation, or turned off.

The power and battery-status light blinks amber along with beep codes indicating failures.

For example, the power and battery-status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the computer is turned off indicating no memory or RAM is detected.

The following table shows the different power and battery-status light patterns and the problems that each light pattern indicate.

Table 8. Light patterns

Light pattern	Problem description
2,1	CPU failure
2,2	System board: BIOS and ROM failure
2,3	No memory or RAM detected
2,4	Memory or RAM failure
2,5	Invalid memory installed
2,6	System board or chipset error
2,7	LCD failure
3,1	CMOS battery failure
3,2	PCI or video card or chip failure
3,3	Recovery image not found
3,4	Recovery image found but invalid

Camera status light: Indicates whether the camera is in use.

- Solid white — Camera is in use.
- Off — Camera is not in use.

Caps Lock status light: Indicates whether Caps Lock is enabled or disabled.

- Solid white — Caps Lock enabled.
- Off — Caps Lock disabled.

Flea power release

Flea power is the residual static electricity that remains on the computer even after it has been powered off and the battery has been removed. The following procedure provides the instructions on how to conduct flea power release:

- 1 Turn off your computer.
- 2 Remove the [base cover](#).
- 3 Press and hold the power button for 15 seconds to drain the flea power.
- 4 Replace the [base cover](#).

- 5 Turn on your computer.

Wi-Fi power cycle

If your computer is unable to access the internet due to Wi-Fi connectivity issues a Wi-Fi power cycle procedure may be performed. The following procedure provides the instructions on how to conduct a Wi-Fi power cycle:



NOTE: Some ISPs (Internet Service Providers) provide a modem/router combo device.

- 1 Turn off your computer.
- 2 Turn off the modem.
- 3 Turn off the wireless router.
- 4 Wait for 30 seconds.
- 5 Turn on the wireless router.
- 6 Turn on the modem.
- 7 Turn on your computer.

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 9. Self-help resources

Information about Dell products and services

www.dell.com

Dell Help & Support app



Tips



Contact Support

In Windows search, type **Contact Support**, and press Enter.

Online help for operating system

www.dell.com/support/windows

www.dell.com/support/linux

Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.

www.dell.com/support

Dell knowledge base articles for a variety of computer concerns.

- 1 Go to www.dell.com/support.
- 2 Type the subject or keyword in the **Search** box.
- 3 Click **Search** to retrieve the related articles.

Learn and know the following information about your product:

See *Me and My Dell* at www.dell.com/support/manuals.

- Product specifications
- 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, identify 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.



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.