

Inspiron 15 7000

Service Manual

Computer Model: Inspiron 15-7572
Regulatory Model: P61F
Regulatory Type: P61F001



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.

Copyright © 2017 Dell Inc. or its subsidiaries. All rights reserved. Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.

2017 - 09

Rev. A00

Contents

- Before working inside your computer..... 9**
 - Before you begin 9
 - Safety instructions..... 9
 - Recommended tools..... 10
 - Screw list..... 11
- After working inside your computer..... 13**
- Removing the base cover..... 14**
 - Procedure..... 14
- Replacing the base cover.....16**
 - Procedure..... 16
- Removing the battery..... 17**
 - Prerequisites..... 17
 - Procedure..... 17
- Replacing the battery..... 19**
 - Procedure..... 19
 - Post-requisites..... 19
- Removing the coin-cell battery..... 20**
 - Prerequisites..... 20
 - Procedure..... 21



Replacing the coin-cell battery..... 22
 Procedure.....22
 Post-requisites..... 22

Removing the fan.....23
 Prerequisites.....23
 Procedure.....23

Replacing the fan.....26
 Procedure..... 26
 Post-requisites..... 26

Removing the hard drive..... 27
 Prerequisites..... 27
 Procedure.....27

Replacing the hard drive..... 30
 Procedure..... 30
 Post-requisites..... 30

Removing the heat sink..... 31
 Prerequisites..... 31
 Procedure..... 31

Replacing the heat sink.....33
 Procedure.....33
 Post-requisites..... 33

Removing the wireless card..... 34
 Prerequisites.....34
 Procedure.....34



Replacing the wireless card.....	36
Procedure.....	36
Post-requisites.....	37
Removing the display assembly.....	38
Prerequisites.....	38
Procedure.....	38
Replacing the display assembly.....	42
Procedure.....	42
Post-requisites.....	42
Removing the I/O board.....	43
Prerequisites.....	43
Procedure.....	43
Replacing the I/O board.....	45
Procedure.....	45
Post-requisites.....	45
Removing the memory module.....	46
Prerequisites.....	46
Procedure.....	46
Replacing the memory module.....	48
Procedure.....	48
Post-requisites.....	48
Removing the speakers.....	49
Prerequisites.....	49
Procedure.....	49



Replacing the speakers.....	51
Procedure.....	51
Post-requisites.....	51
Removing the status-light board.....	52
Prerequisites.....	52
Procedure.....	52
Replacing the status-light board.....	54
Procedure.....	54
Post-requisites.....	54
Removing the solid-state drive.....	55
Prerequisites.....	55
Procedure.....	55
Replacing the solid-state drive.....	57
Procedure.....	57
Post-requisites.....	58
Removing the touchpad.....	59
Prerequisites.....	59
Procedure.....	59
Replacing the touchpad.....	63
Procedure.....	63
Post-requisites.....	63
Removing the system board.....	64
Prerequisites.....	64
Procedure.....	64

Replacing the system board..... 67
 Procedure..... 67
 Post-requisites..... 68

Removing the power-adapter port..... 69
 Prerequisites..... 69
 Procedure..... 69

Replacing the power-adapter port..... 71
 Procedure..... 71
 Post-requisites..... 71

Removing the palm rest and keyboard assembly..... 72
 Prerequisites..... 72
 Procedure..... 73

Replacing the palm rest and keyboard assembly..... 74
 Procedure..... 74
 Post-requisites..... 74

Downloading drivers..... 75
 Downloading the audio driver..... 75
 Downloading the graphics driver..... 75
 Downloading the USB 3.0 driver..... 76
 Downloading the Wi-Fi driver..... 76
 Downloading the media-card reader driver..... 76
 Downloading the chipset driver..... 77
 Downloading the network driver..... 77



System setup..... 79

- Boot Sequence..... 79
- Navigation keys..... 79
- BIOS overview..... 80
- Entering BIOS setup program.....80
- System setup options.....81
- System and setup password..... 87
 - Assigning a system password and setup password.....88
 - Deleting or changing an existing system and or setup password..... 88
 - Clearing CMOS settings.....89
 - Clearing forgotten passwords.....89

Troubleshooting..... 90

- Flashing the BIOS..... 90
- Flashing BIOS (USB key).....90
- Enhanced Pre-Boot System Assessment (ePSA) diagnostics..... 91
 - Running the ePSA diagnostics..... 91
- System diagnostic lights..... 92
- Flea power release.....93
- Wi-Fi power cycle.....94

Getting help and contacting Dell..... 95

- Self-help resources..... 95
- Contacting Dell.....96





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

The following table provides the list of screws that are used for securing different components to the palm rest and keyboard assembly.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Base cover	Palm rest and keyboard assembly	M2.5x5	8	
Battery	Palm rest and keyboard assembly	M2x3	4	
Display assembly (display hinge)	Palm rest and keyboard assembly	M2.5x5	4	
Fan	Palm rest and keyboard assembly	M2x3	2	
Hard-drive bracket	Palm rest and keyboard assembly	M2x3	4	
Hard drive	Hard-drive bracket	M3x3	4	
Heat sink	System board	M2x3	3	
I/O board	Palm rest and keyboard assembly	M2x3	2	
Power-adaptor port	Palm rest and keyboard assembly	M2x3	1	
Status-light board	Palm rest and keyboard assembly	M2x3	1	
Solid-state drive	Palm rest and keyboard assembly	M3x3	1	



Component	Secured to	Screw type	Quantity	Screw image
System board	Palm rest and keyboard assembly	M2x3	5	
Touch-pad bracket	Palm rest and keyboard assembly	M2x3	3	
Touch pad	Palm rest and keyboard assembly	M2x2	4	
Wireless-card bracket	Palm rest and keyboard assembly	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.



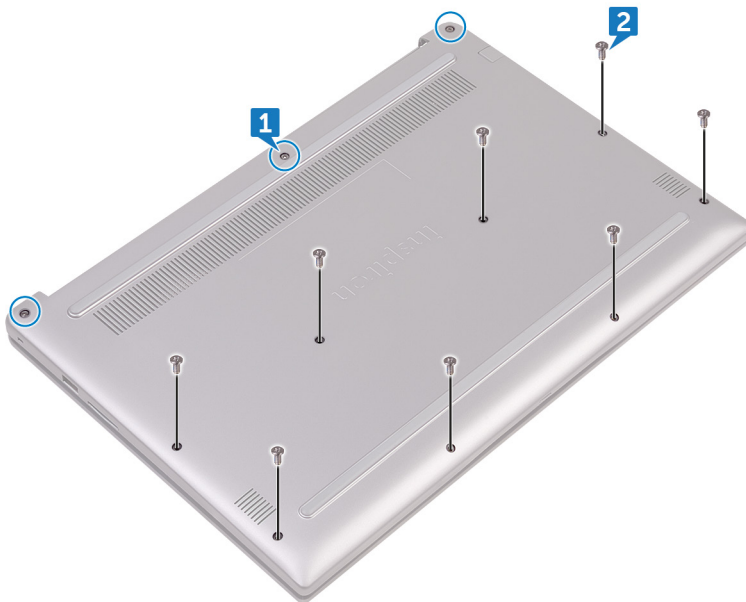
Removing the base cover



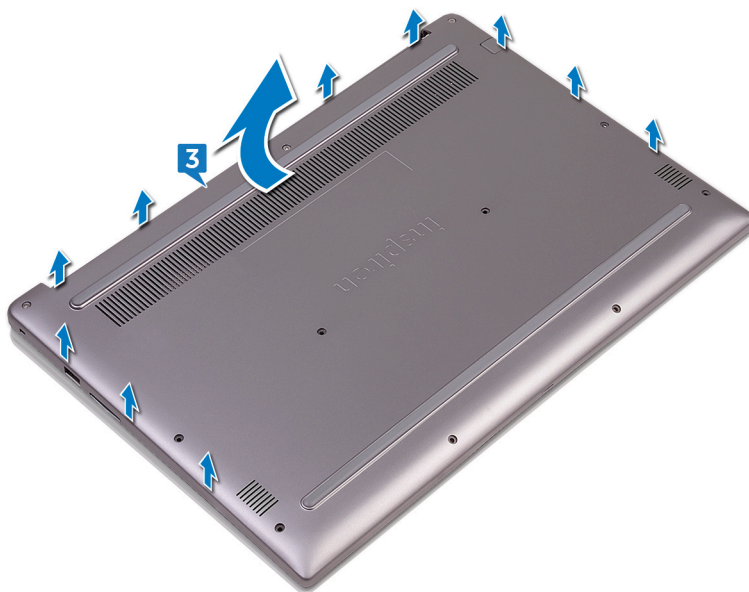
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Procedure

- 1 Loosen the three captive screws that secure the base cover to the palm rest and keyboard assembly.
- 2 Remove the eight screws (M2.5x5) that secure the base cover to the palm rest and keyboard assembly.



- 3** Using your fingertips, pry the base cover off the palm rest and keyboard assembly.



Replacing the base cover



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 base cover with the palm rest and keyboard assembly and snap it into place.
- 2 Replace the eight screws (M2.5x5) that secure the base cover to the palm rest and keyboard assembly.
- 3 Tighten the three captive screws that secure the base cover to the palm rest and keyboard assembly.

Removing the battery



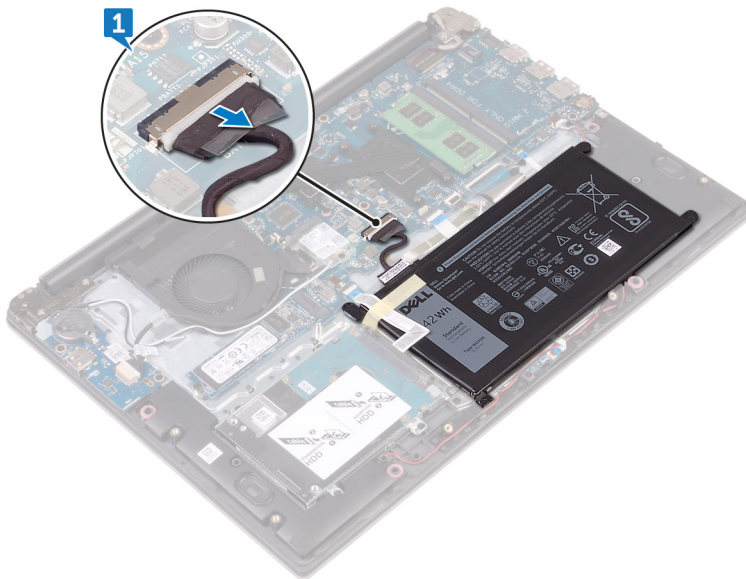
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

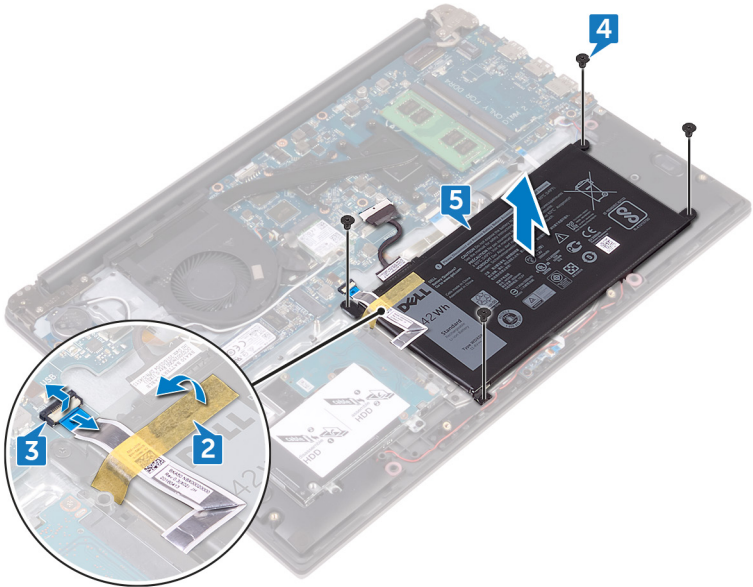
Remove the [base cover](#).

Procedure

- 1 Disconnect the battery cable from the system board.



- 2** Peel the tape that secures the hard-drive cable to the battery.
- 3** Open the latch and disconnect the hard-drive cable from the system board.
- 4** Remove the four screws (M2x3) that secure the battery to the palm rest and keyboard assembly.
- 5** Lift the battery off the palm rest and keyboard assembly.



- 6** Press and hold the power button for five seconds to ground the system board.

Replacing the 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

- 1 Align the screw holes on the battery with the screw holes on the palm rest and keyboard assembly.
- 2 Replace the four screws (M2x3) that secure the battery to the palm rest and keyboard assembly.
- 3 Slide the hard-drive cable into the connector on the system board and close the latch to secure the cable.
- 4 Adhere the tape that secures the hard-drive cable to the battery.
- 5 Connect the battery cable to the system board.

Post-requisites

Replace the [base cover](#).



Removing 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.



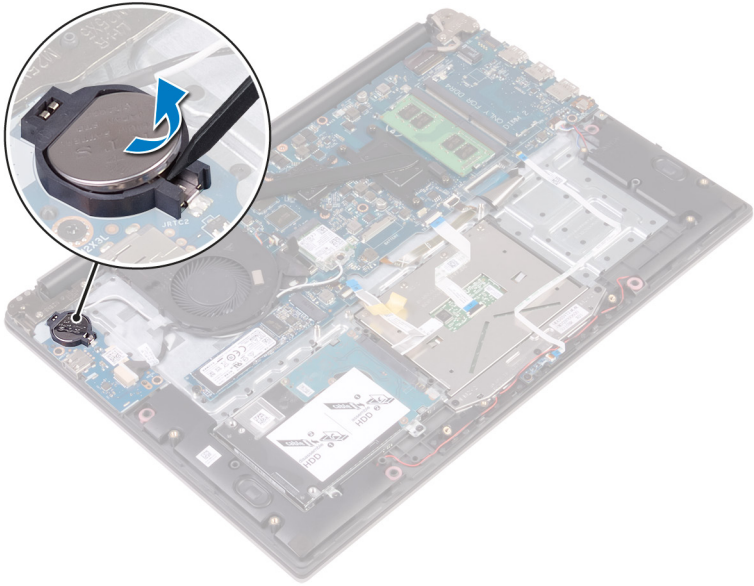
CAUTION: Removing the coin-cell battery resets the BIOS setup program's settings to default. It is recommended that you note the BIOS setup program's settings before removing the coin-cell battery.

Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

Using a plastic scribe, pry the coin-cell battery out of the battery socket.



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.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).

Removing the fan



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

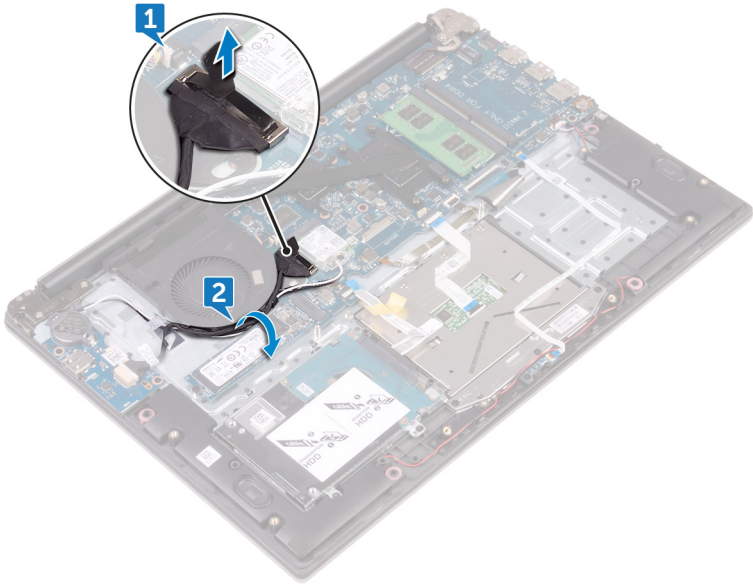
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Using the pull tab, disconnect the I/O-board cable from the system board.

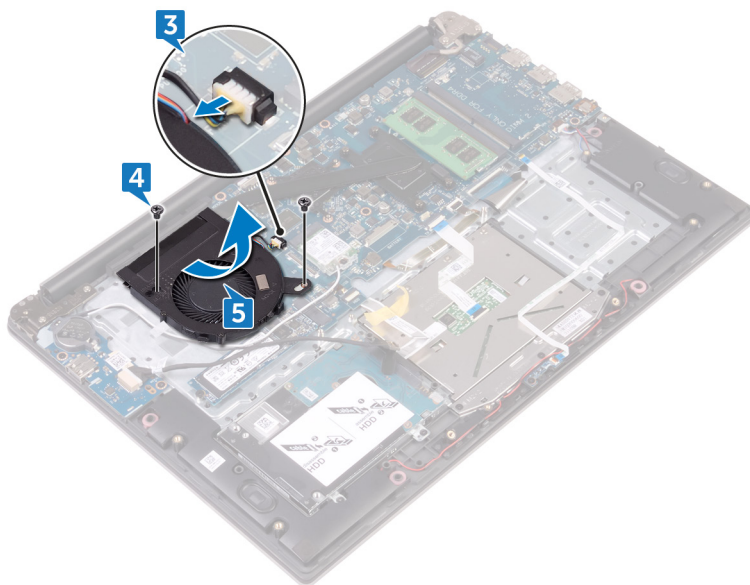


- 2 Note the routing and remove the I/O-board cable and the antenna cables from the routing guides on the fan.



- 3 Disconnect the fan cable from the system board.
- 4 Remove the two screws (M2x3) that secure the fan to the palm rest and keyboard assembly.

- 5** Slide and lift the fan off the palm rest and keyboard assembly.



Replacing the fan



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 holes on the fan with the screw holes on the palm rest and keyboard assembly.
- 2 Replace the two screws (M2x3) that secure the fan to the palm rest and keyboard assembly.
- 3 Connect the fan cable to the system board.
- 4 Route the I/O-board cable and antenna cables through the routing guides on the fan.
- 5 Connect the I/O-board cable to the system board.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).

Removing the hard drive



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.



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

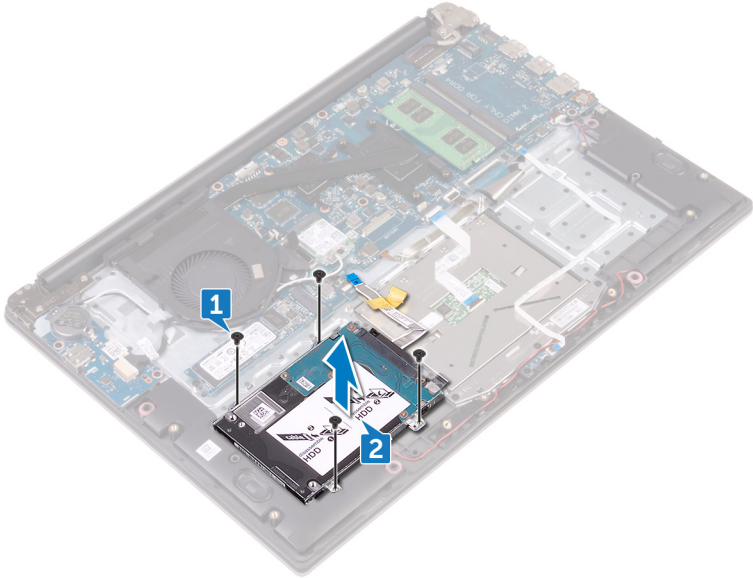
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

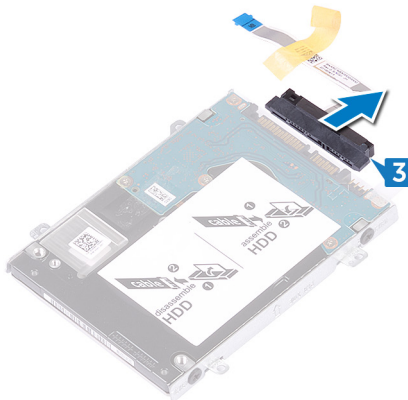
- 1 Remove the four screws (M2x3) that secure the hard-drive assembly to the palm rest and keyboard assembly.



- 2 Lift the hard-drive assembly off the palm rest and keyboard assembly.

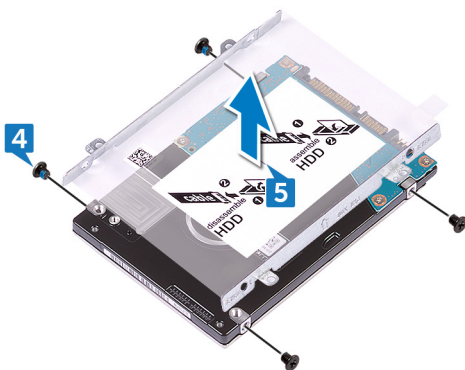


- 3 Disconnect the interposer from the hard-drive assembly.



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

- 5** Lift the hard-drive bracket off the hard drive.



Replacing the hard drive



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.



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

Procedure

- 1 Align the screw holes on the hard-drive bracket with the screw holes on the hard drive.
- 2 Replace the four screws (M3x3) that secure the hard-drive bracket to the hard drive.
- 3 Connect the interposer 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 four screws (M2x3) that secure the hard-drive assembly to the palm rest and keyboard assembly.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).

Removing the heat sink



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.



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

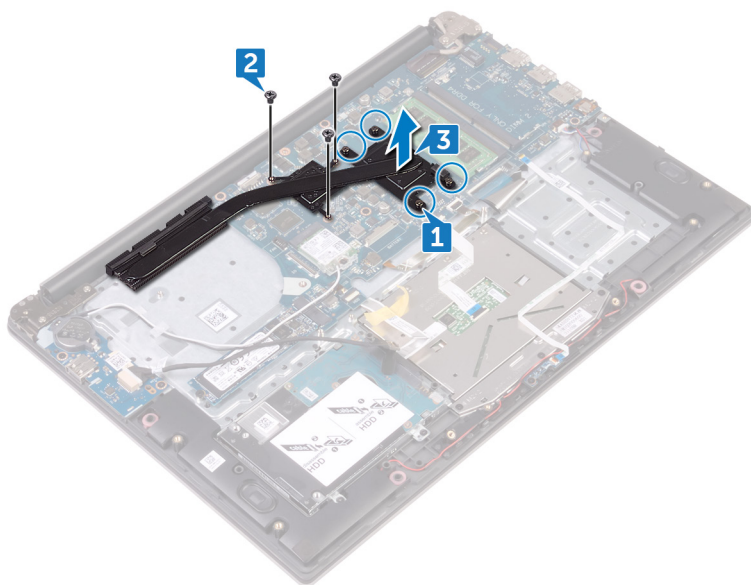
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 In sequential order (as indicated on the heat sink), loosen the four captive screws that secure the heat sink to the system board.
- 2 In sequential order (as indicated on the heat sink), remove the three screws (M2x3) that secure the heat sink to the system board.



- 3** Lift the heat sink off the system board.



Replacing the heat sink



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.



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



NOTE: The original thermal grease can be reused if the original system board and heat sink are reinstalled together. 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 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), replace the three screws (M2x3) that secure the heat-sink assembly to the system board.
- 3 In sequential order (indicated on the heat sink), tighten the four captive screws that secure the heat sink to the system board.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).



Removing the wireless card



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.

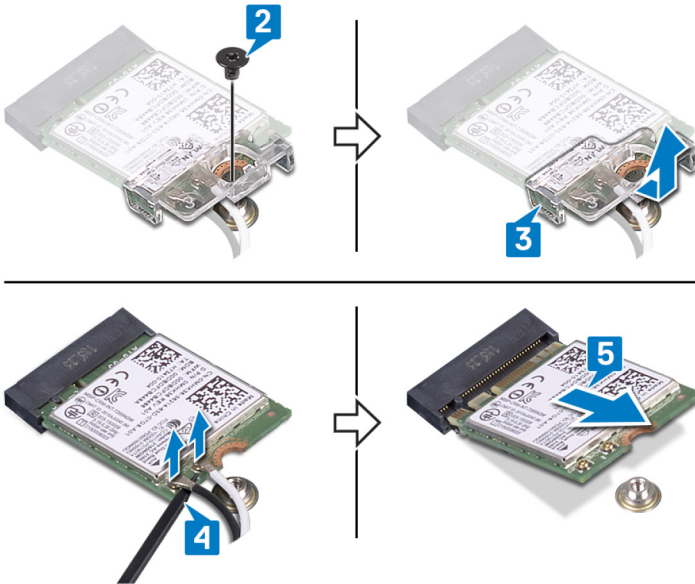
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Locate the wireless card on the system board.
- 2 Remove the screw (M2x3) that secures the wireless-card bracket to the wireless card and the system board.
- 3 Remove the wireless-card bracket from the wireless card.
- 4 Using a plastic scribe, disconnect the antenna cables from the wireless card.

- 5** Slide and remove the wireless card from the wireless-card slot.



Replacing the wireless card



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 wireless card with the tab on the wireless-card slot.
- 2 Slide the wireless card at an angle into the wireless-card slot.
- 3 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:

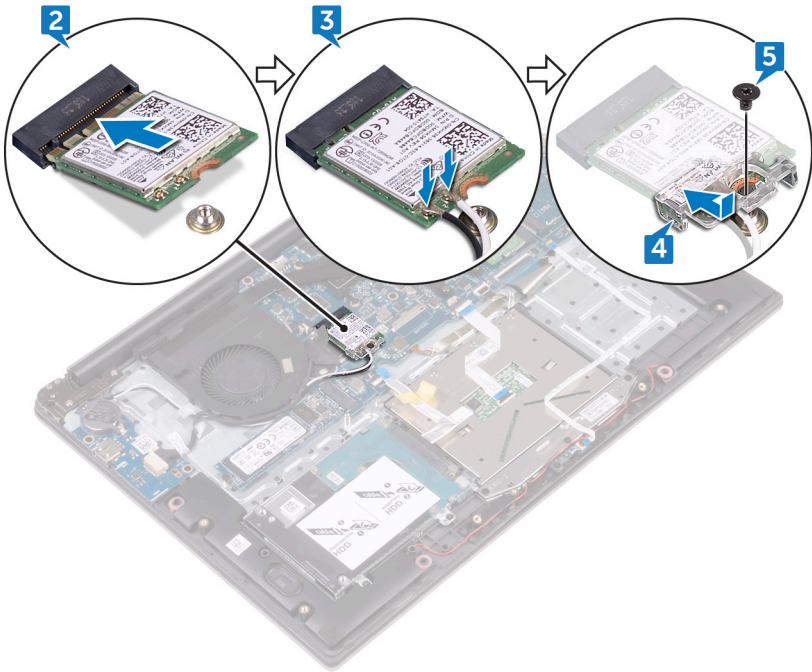
Table 2. Antenna-cable color scheme

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

- 4 Align the screw hole on the wireless-card bracket with the screw hole on the wireless card and the system board.



- 5 Press the other end of the wireless card and replace the screw that secures the wireless-card bracket to the wireless card and the system board.



Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).

Removing the display 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.

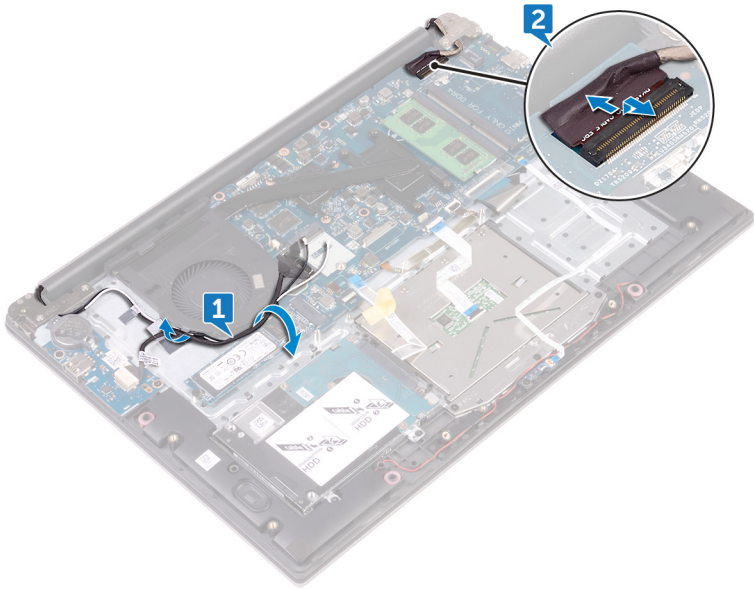
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Remove the [wireless card](#).

Procedure

- 1 Note the routing and remove the antenna cables from the routing guides on the fan.

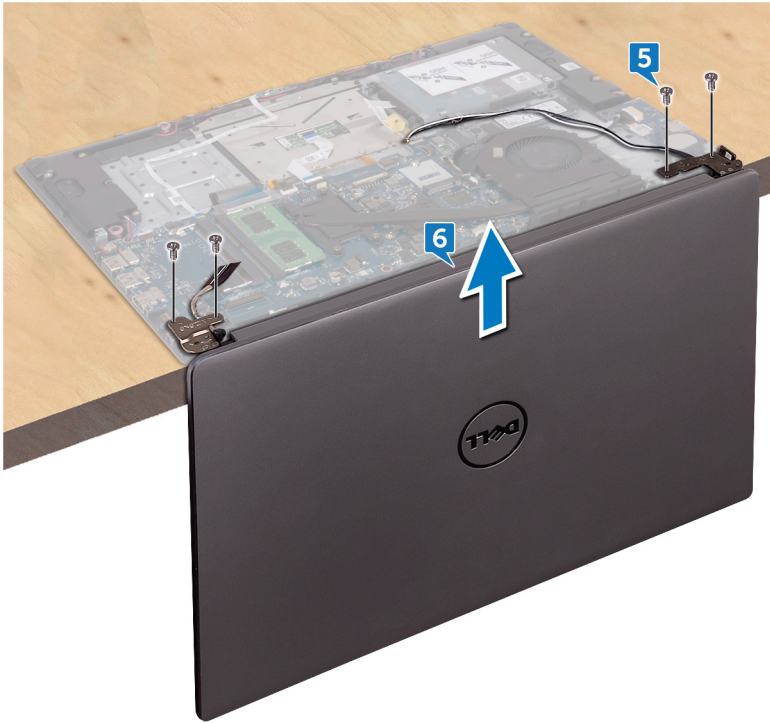
- 2 Open the latch and disconnect the display cable from the system board.



- 3 Open the display at an angle of 90 degrees.
- 4 Place the computer on the edge of a table so that the palm rest and keyboard assembly is on the table and the display assembly extends past the table edge with the display hinges facing up.
- 5 Remove the four screws (M2.5x5) that secure the display hinges to the palm rest and keyboard assembly.



- 6** Lift the display assembly off the palm rest and keyboard assembly.





Replacing the display 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

- 1 Place the palm rest and keyboard assembly on the edge of a table with the keyboard facing down.
- 2 Align the screw holes on the display hinges with the screw holes on the palm rest and keyboard assembly.
- 3 Replace the four screws (M2.5x5) that secure the display assembly to the palm rest and keyboard assembly.
- 4 Close the display and turn the computer over.
- 5 Slide the display cable into the connector on the system board and close the latch to secure the cable.
- 6 Route the antenna cables through the routing guides on the fan.

Post-requisites

- 1 Replace the [wireless card](#).
- 2 Replace the [battery](#).
- 3 Replace the [base cover](#).

Removing the I/O board



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

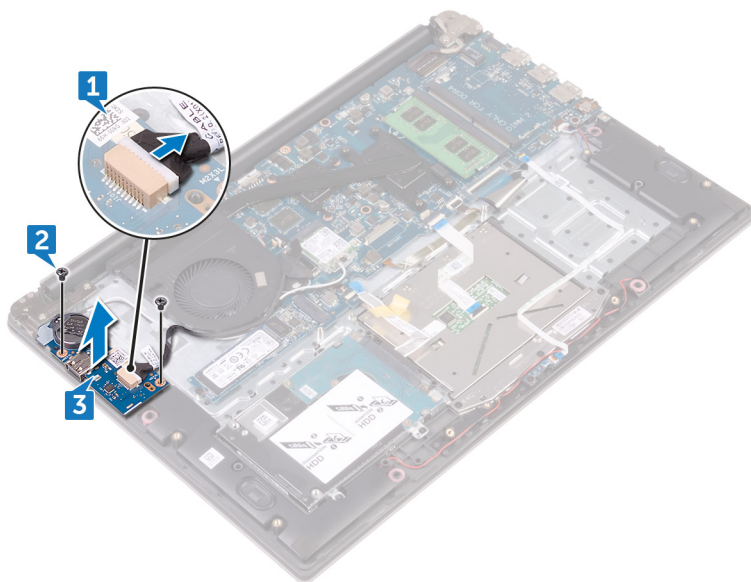
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Disconnect the I/O-board cable from the I/O board.
- 2 Remove the two screws (M2x3) that secure the I/O board to the palm rest and keyboard assembly.



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



Replacing the I/O board



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 holes on the I/O board with the screw holes on the palm rest and keyboard assembly.
- 2 Replace the two screws (M2x3) that secure the I/O board to the palmrest and keyboard assembly.
- 3 Connect the I/O-board cable to the I/O board.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).



Removing the memory module



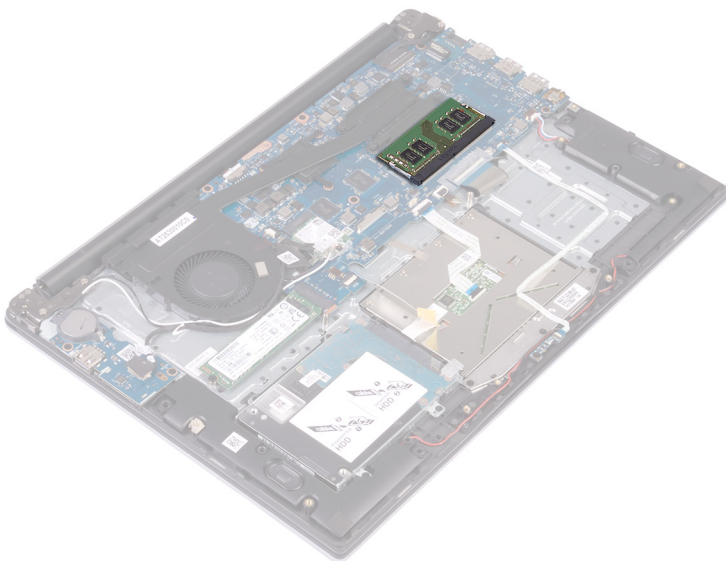
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

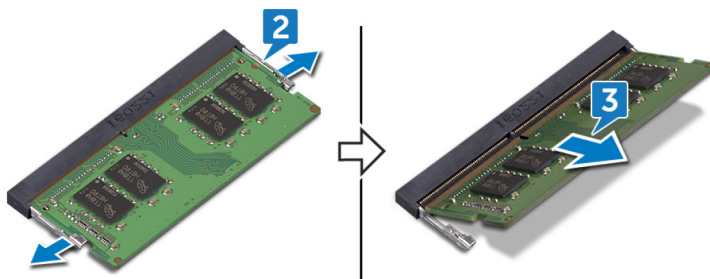
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Locate the memory module on the system board.



- 2** Use your fingertips to carefully spread apart the securing clips on each end of the memory-module slot until the memory module pops up.
- 3** Remove the memory module from the memory-module slot.



Replacing the memory module



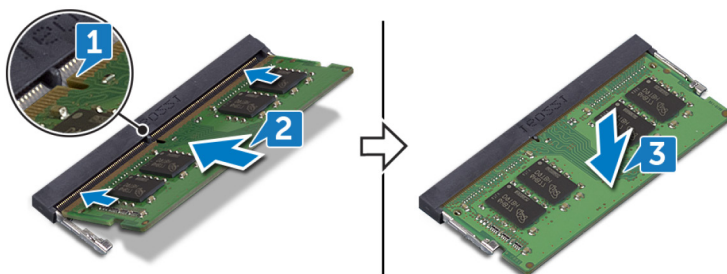
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, 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.
- 3 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 [battery](#).
- 2 Replace the [base cover](#).

Removing the speakers



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

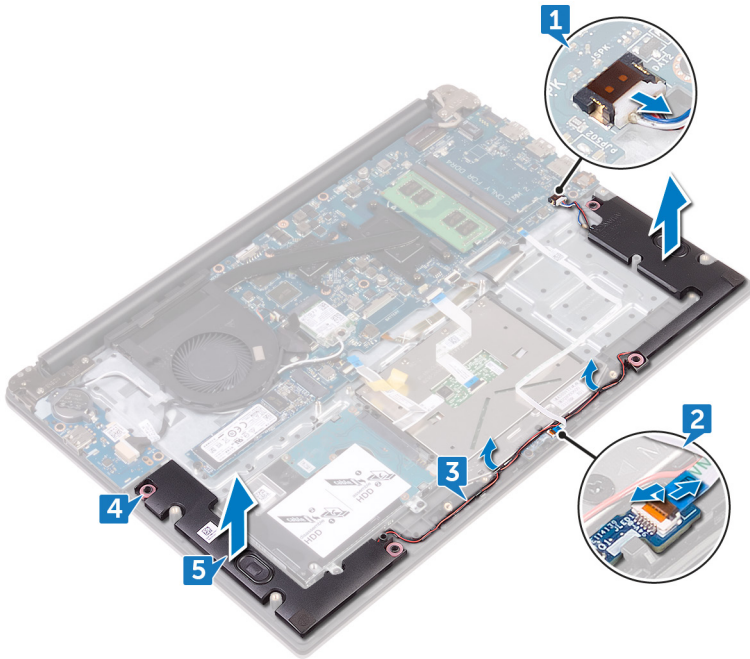
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Disconnect the speaker cable from the system board.
- 2 Open the latch and disconnect the status-light board cable from the status-light board.
- 3 Remove the speaker cable from the routing guides on the palm rest and keyboard assembly.
- 4 Note the position of the rubber grommets before lifting the speaker.



- 5 Remove the speakers from the alignment posts and lift the speakers off the palm rest and keyboard assembly.



Replacing the speakers



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



NOTE: The rubber grommets may get pushed out while replacing the speaker. Ensure that the rubber grommets are in their position after placing the speaker on the palm rest and keyboard assembly.

- 1 Using the alignment posts, align and place the speakers on the palm rest and keyboard assembly.
- 2 Route the speaker cable through the routing guides on the palm rest and keyboard assembly.
- 3 Slide the status-light board cable into the connector on the status-light board and close the latch to secure the cable.
- 4 Connect the speaker cable to the system board.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).



Removing the status-light board



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.

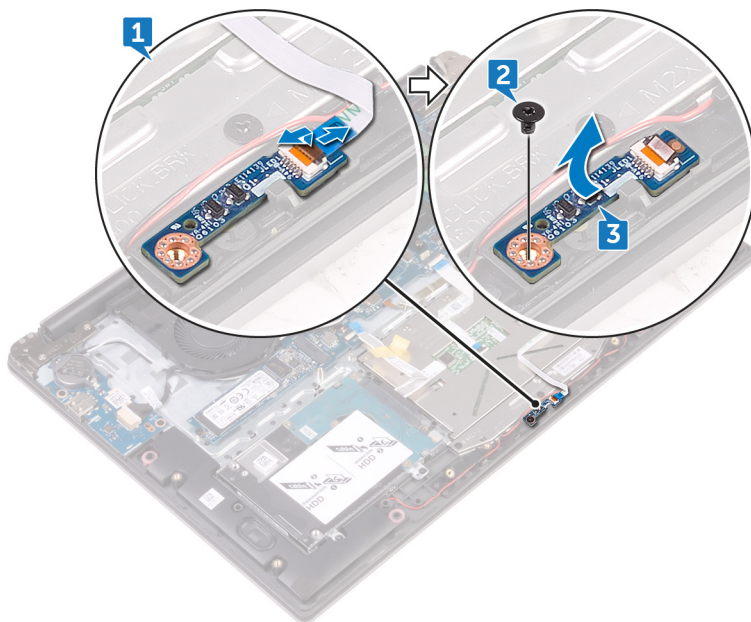
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Open the latch and disconnect the status-light board cable from the status-light board.
- 2 Remove the screw (M2x3) that secures the status-light board to the palm rest and keyboard assembly.

- 3** Lift the status-light board off the palm rest and keyboard assembly.



Replacing the status-light board



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 status-light board with the screw hole on the palm rest and keyboard assembly.
- 2 Replace the screw (M2x3) that secures the status-light board to the palm rest and keyboard assembly.
- 3 Slide the status-light board cable into the connector on the status-light board and close the latch to secure the cable.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).

Removing the solid-state drive



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.



CAUTION: Solid-state drives are fragile. Exercise care when handling the solid-state drive.



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

Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

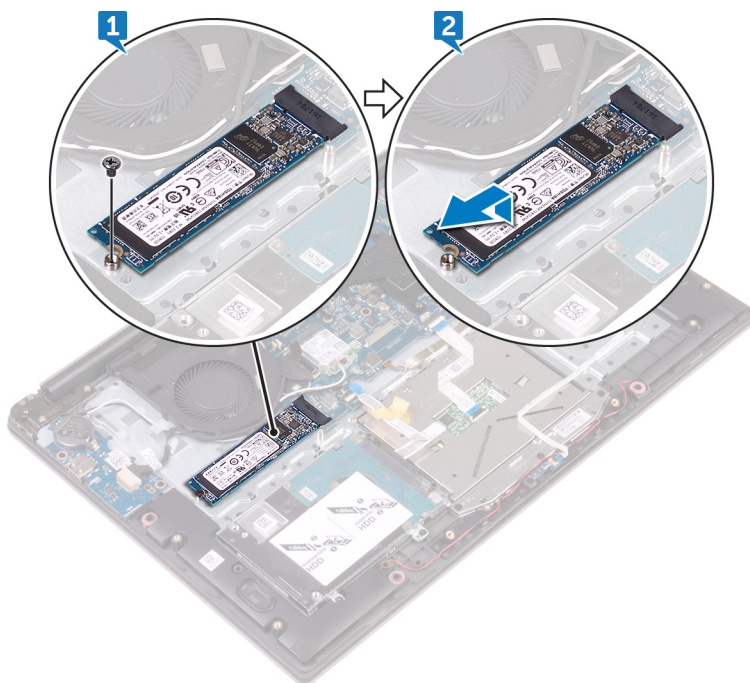


NOTE: Remove the solid-state drive bracket, if applicable.

- 1 Remove the screw (M3x3) that secures the solid-state drive to the palm rest and keyboard assembly.



- 2** Slide and remove the solid-state drive from the solid-state drive slot.



Replacing the solid-state drive



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.



CAUTION: Solid-state drives are fragile. Exercise care when handling the solid-state drive.

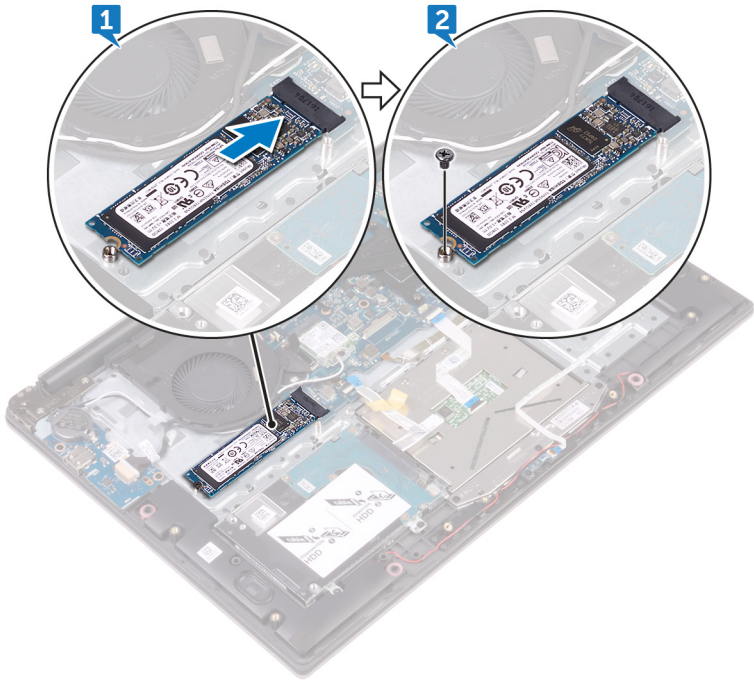
Procedure

- 1 Slide the solid-state drive firmly into the solid-state drive slot at an angle and gently press the solid-state drive down until it snaps into position.



NOTE: Ensure that the solid-state drive is firmly seated.

- 2 Replace the screw (M3x3) that secures the solid-state drive to the palm rest and keyboard assembly.



 **NOTE:** Align the screw holes on the solid-state drive bracket to the screw holes on the solid-state drive, if applicable.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).

Removing the touchpad



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

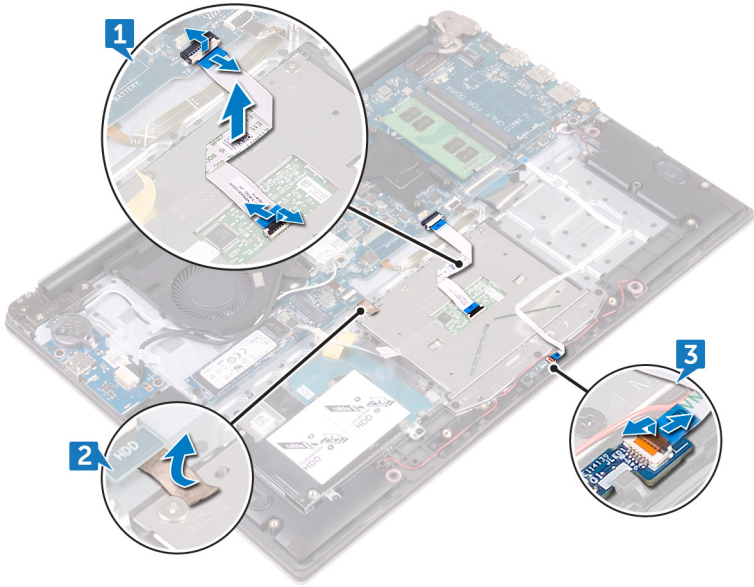
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

Procedure

- 1 Open the latches and disconnect the touch-pad cable from the touch-pad and the system board.
- 2 Peel off the tape that secures the touch pad to the palm rest and keyboard assembly.

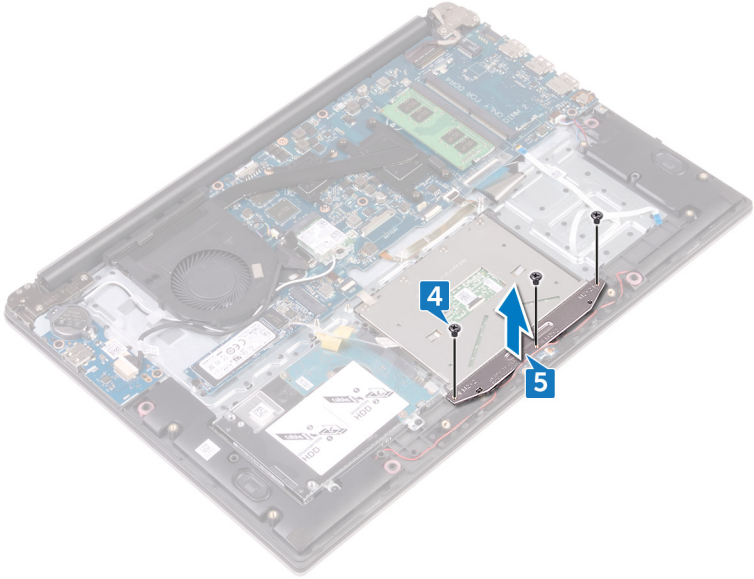


- 3** Open the latch and disconnect the status-light board cable from the status-light board.



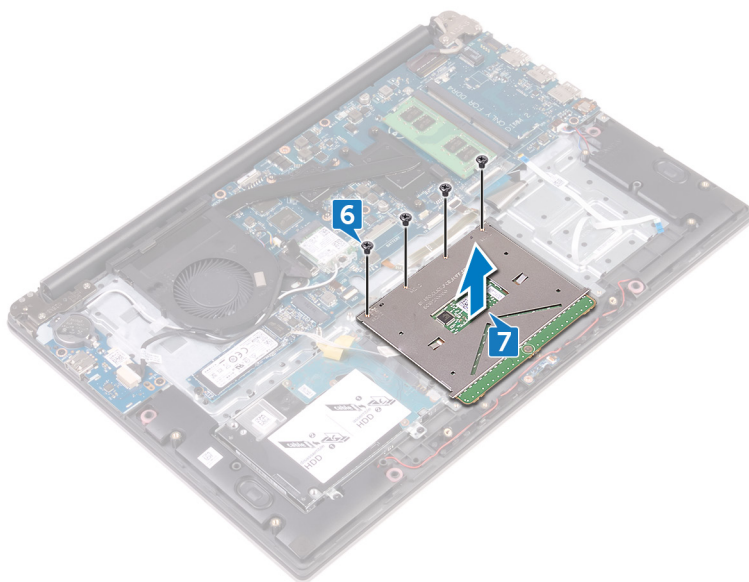
- 4** Remove the three screws (M2x3) that secure the touch-pad bracket to the palm rest and keyboard assembly.

- 5** Lift the touch-pad bracket off the palm rest and keyboard assembly.



- 6** Remove the four screws (M2x2) that secure the touch pad to the palm rest and keyboard assembly.

- 7 Lift the touch pad off the palm rest and keyboard assembly.



Replacing the touchpad



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 holes on the touch pad with the screw holes on the palm rest and keyboard assembly.
- 2 Replace the four screws (M2x2) that secure the touch pad to the palm rest and keyboard assembly.
- 3 Align the screw holes on the touch-pad bracket with the screw holes on the palm rest and keyboard assembly.
- 4 Replace the three screws (M2x3) that secure the touch-pad bracket to the palm rest and keyboard assembly.
- 5 Slide the status-light board cable into the connector on the system board and close the latch to secure the cable.
- 6 Adhere the tape that secures the touch pad to the palm rest and keyboard assembly.
- 7 Slide both ends of the touch-pad cable into their respective connectors on the touch-pad assembly and system board and close the latches to secure the cable.

Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [base cover](#).



Removing the system board



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.



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.

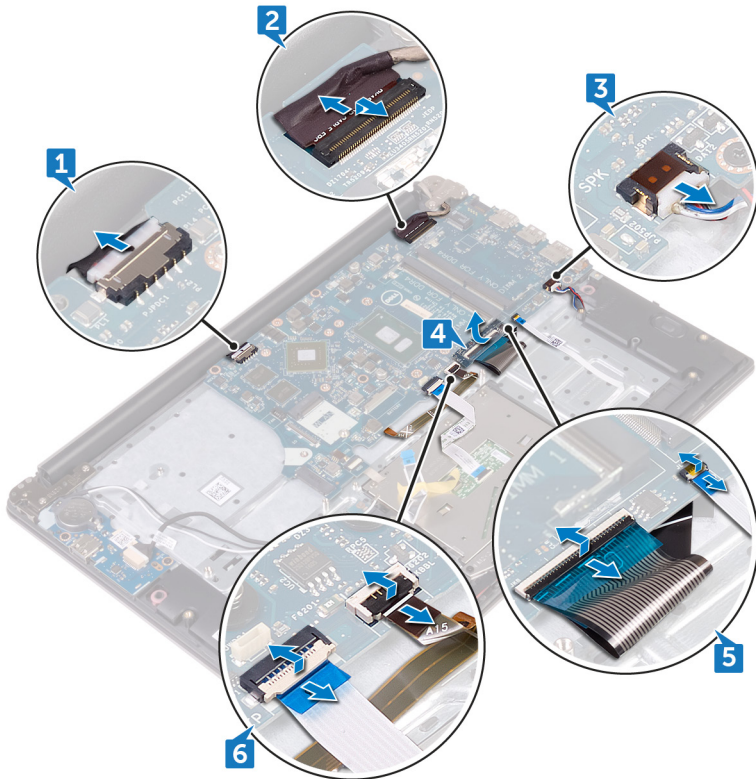
Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Remove the [memory module](#).
- 4 Remove the [wireless card](#).
- 5 Remove the [fan](#).
- 6 Remove the [heat sink](#).
- 7 Remove the [solid-state drive](#).
- 8 Follow the procedure from step 1 to step 2 in "[Removing the hard drive](#)".

Procedure

- 1 Disconnect the power-adaptor port cable from the system board.
- 2 Open the latch and disconnect the display cable from the system board.
- 3 Disconnect the speaker cable from the system board.

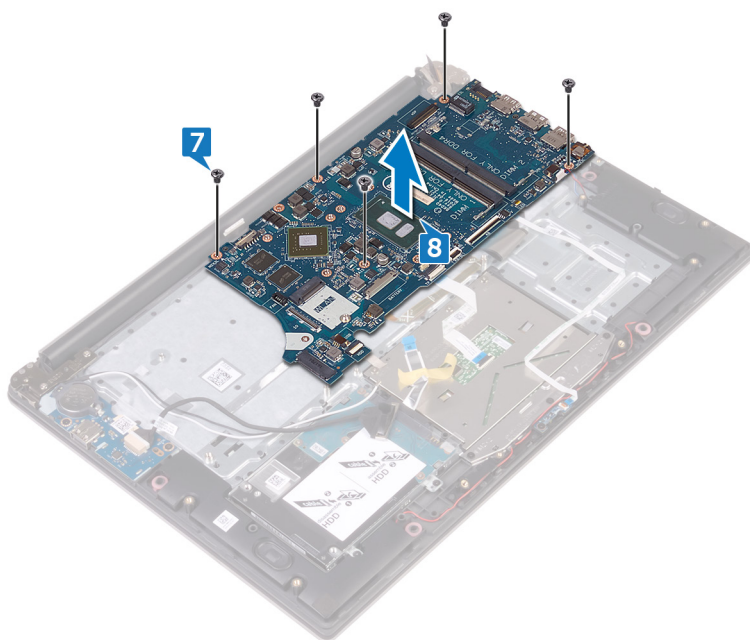
- 4 Peel off the tape that secures the keyboard cable to the system board.
- 5 Open the latches and disconnect the keyboard cable and the status-light board cable from the system board.
- 6 Open the latch and disconnect the touch-pad cable and the keyboard-backlit cable from the system board.



- 7 Remove the five screws (M2x3) that secure the system board to the palm rest and keyboard assembly.



- 8** Lift the system board off the palm rest and keyboard assembly.



Replacing the system board



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.



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



CAUTION: To avoid damaging the system board, ensure that no cables are placed under it.

- 1 Align the screw holes on the system board with the screw holes on the palm rest and keyboard assembly.
- 2 Replace the five screws (M2x3) that secure the system board to the palm rest and keyboard assembly.
- 3 Slide the touch-pad cable and the keyboard-backlit cable into the connectors on the system board and close the latches to secure the cables.
- 4 Slide the keyboard cable and the status-light board cable into the connectors on the system board and close the latches to secure the cables.
- 5 Adhere the tape that secures the keyboard cable to the system board.
- 6 Connect the speaker cable to the system board.
- 7 Slide the display cable into the connector on the system board and close the latch to secure the cable.
- 8 Connect the power-adaptor port cable to the system board.



Post-requisites

- 1 Follow the procedure from step 4 to step 5 in "[Replacing the hard drive](#)".
- 2 Replace the [solid-state drive](#).
- 3 Replace the [heat sink](#).
- 4 Replace the [fan](#).
- 5 Replace the [wireless card](#).
- 6 Replace the [memory module](#).
- 7 Replace the [battery](#).
- 8 Replace the [base cover](#).



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

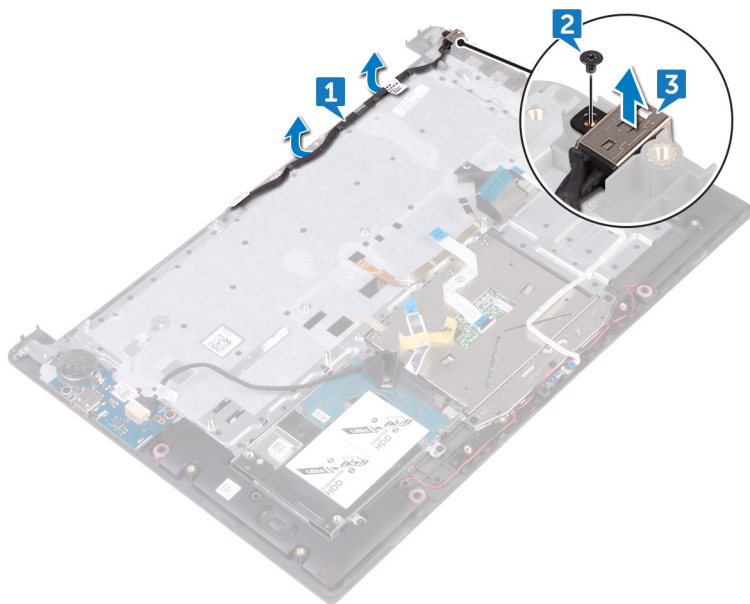
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Remove the [memory module](#).
- 4 Remove the [wireless card](#).
- 5 Remove the [fan](#).
- 6 Remove the [heat sink](#).
- 7 Remove the [solid-state drive](#).
- 8 Follow the procedure from step 1 to step 2 in “[Removing the hard drive](#)”.
- 9 Remove the [system board](#).
- 10 Remove the [display assembly](#).

Procedure

- 1 Note the power-adapter port cable routing and remove it from the routing guides on the palm rest and keyboard assembly.
- 2 Remove the screw (M2x3) that secures the power-adapter port to the palm rest and keyboard assembly.



- 3** Lift the power-adaptor port off the palm rest and keyboard 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 and keyboard assembly and snap it into place.
- 2 Replace the (M2x3) screw that secures the power-adapter port to the palm rest and keyboard assembly.
- 3 Route the power-adapter port cable through the routing guides on the palm rest and keyboard assembly.

Post-requisites

- 1 Replace the [display assembly](#).
- 2 Replace the [system board](#).
- 3 Follow the procedure from step 4 to step 5 in "[Replacing the hard drive](#)".
- 4 Replace the [solid-state drive](#).
- 5 Replace the [heat sink](#).
- 6 Replace the [fan](#).
- 7 Replace the [wireless card](#).
- 8 Replace the [memory module](#).
- 9 Replace the [battery](#).
- 10 Replace the [base cover](#).



Removing the palm rest and keyboard assembly



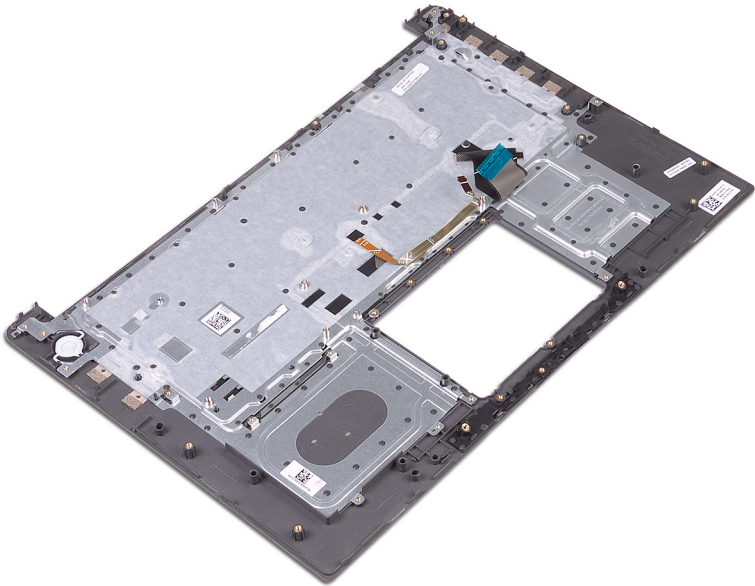
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Remove the [coin-cell battery](#).
- 4 Remove the [memory module](#).
- 5 Follow the procedure from step 1 to step 2 in “[Removing the hard drive](#)”.
- 6 Remove the [wireless card](#).
- 7 Remove the [fan](#).
- 8 Remove the [heat sink](#).
- 9 Remove the [touch pad](#).
- 10 Remove the [I/O board](#).
- 11 Remove the [speakers](#).
- 12 Remove the [status-light board](#).
- 13 Remove the [solid-state drive](#).
- 14 Remove the [display assembly](#).
- 15 Remove the [system board](#).
- 16 Remove the [power-adaptor port](#).

Procedure

After performing the steps in prerequisites we are left with the palm rest and keyboard assembly.



Replacing the palm rest and keyboard 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 palm rest and keyboard assembly on a clean and flat surface.

Post-requisites

- 1 Replace the [power-adaptor port](#).
- 2 Replace the [system board](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [solid-state drive](#).
- 5 Replace the [status-light board](#).
- 6 Replace the [speakers](#).
- 7 Replace the [I/O board](#).
- 8 Replace the [touch pad](#).
- 9 Replace the [heat sink](#).
- 10 Replace the [fan](#).
- 11 Replace the [wireless card](#).
- 12 Follow the procedure from step 4 to step 5 in "[Replacing the hard drive](#)".
- 13 Replace the [memory module](#).
- 14 Replace the [coin-cell battery](#).
- 15 Replace the [battery](#).
- 16 Replace the [base cover](#).

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.

Downloading the network 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 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 **Network**.
- 6 Click **Download** to download the network driver for your computer.
- 7 Save the file, and after the download is complete, navigate to the folder where you saved the network driver file.
- 8 Double-click the network driver file icon and follow the instructions on 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 this computer and its installed devices, the items listed in this section may or may not appear.

Table 3. System setup options—System information menu

General-System Information	
System Information	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Ownership Tag	Displays the ownership tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the express service code of the computer.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology used for the memory.
DIMM A Size	Displays the DIMM A memory size.
DIMM B Size	Displays the DIMM B memory size.



General-System Information

Processor Information

Processor Type	Displays the processor type.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Current Clock Speed	Displays the current processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Maximum Clock Speed	Displays the maximum processor clock speed.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
HT Capable	Displays whether the processor is HyperThreading (HT) capable.
64-Bit Technology	Displays whether 64-bit technology is used.

Battery Information

Displays the battery health information.

Boot Sequence

Boot Sequence	Displays the boot sequence.
Boot List Option	Displays the available boot options.

Advanced Boot Options

Enable Legacy Option ROMs	Enable or disable the Legacy Option ROMs.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack.

Date/Time	Displays the current date in MM/DD/YY format and current time in HH:MM:SS AM/PM format.
------------------	---

Table 4. System setup options—System Configuration menu

System Configuration

SATA Operation	Configure operating mode of the integrated SATA hard drive controller.
Drives	Enable or disable various drives on board.



System Configuration

SMART Reporting

Enable or disable SMART Reporting during system startup.

USB Configuration

Enable Boot Support

Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.

Enable External USB Port

Enable or disable booting from USB mass storage devices connected to external USB port.

USB PowerShare

Enable or disable charging external devices through the USB PowerShare port.

Audio

Enable or disable the integrated audio controller.

Miscellaneous Devices

Enable or disable various onboard devices.

Enable Camera

Enable or disable the camera.

Enable Secure Digital (SD)
Card

Enable or disable the SD card.

Table 5. System setup options—Video menu

Video

LCD Brightness

Set the panel brightness independently for Battery and AC power.

Table 6. System setup options—Security menu

Security

Admin Password

Set, change, or delete the administrator password.

System Password

Set, change, or delete the system password.

Internal HDD-1 Password

Set, change, or delete the system's internal hard-disk drive password.

Strong Password

Enable or disable strong passwords.

Password Configuration

Control the minimum and maximum number of characters allowed for Admin and System passwords.



Security

Password Bypass	Bypass the System (Boot) Password and the internal HDD password prompts during a system restart.
Password Change	Enable or disable changes to the System and Hard Disk passwords when an administrator password is set.
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages.
PTT Security	Enable or disable Platform Trust Technology (PTT) visibility to the operating system.
Computrace(R)	Enable or disable the BIOS module interface of the optional Computrace(R) Service from Absolute Software.
CPU XD Support	Enable or disable the Execute Disable mode of the Processor.
Admin Setup Lockout	Enable to prevent users from entering Setup when an Admin Password is set.

Table 7. System setup options—Secure Boot menu

Secure Boot

Secure Boot Enable	Enable or disable the secure boot feature.
--------------------	--

Expert Key Management

Expert Key Management	Enable or disable Expert Key Management.
Custom Mode Key Management	Select the custom values for expert key management.

Table 8. System setup options—Intel Software Guard Extensions menu


Intel 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.

Performance



Intel Software Guard Extensions

Multi Core Support	Enable multiple cores. Default: Enabled.
Intel SpeedStep	Enable or disable Intel Speedstep Technology. Default: Enabled.
	 NOTE: If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.
C-States Control	Enable or disable additional processor sleep states. Default: Enabled.
Intel TurboBoost	Enable or disable Intel TurboBoost mode of the processor. Default: Enabled.
HyperThread control	Enable or disable HyperThreading in the processor. Default: Enabled.

Power Management

Auto on Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays or Selected Days. Default: Disabled.
USB Wake Support	Enable the USB devices to wake the computer from Standby.
Advanced Battery Charge Configuration	Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period.
Primary Battery Charge Configuration	Set the primary battery charge settings with a preselected custom charge start and stop. Default: Adaptive.

POST Behavior

Adapter Warnings	Enable adapter warnings. Default: Enabled.
Mouse/Touchpad	Define the mouse and touchpad input.



Intel Software Guard Extensions

	Default: Touchpad/PS-2 Mouse.
Numlock Enable	Enable or disable Numlock. Default: Enable Numlock.
Fn Lock Options	Enable or disable the Fn lock mode.
Fastboot	Enable to set the speed of the boot process. Default: Thorough.

Table 9. System setup options—Virtualization Support menu

Virtualization Support

Virtualization	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.

Table 10. System setup options—Wireless menu

Wireless

Wireless Switch	Determine which wireless devices can be controlled by the Wireless Switch.
Wireless Device Enable	Enable or disable internal wireless devices.

Table 11. System setup options—Maintenance menu

Maintenance

Service Tag	Display the system's Service Tag.
Asset Tag	Create a system Asset Tag.
BIOS Downgrade	Control flashing of the system firmware to previous revisions.
Data Wipe	Enable to securely erase data from all internal storage devices.

Maintenance	
BIOS Recovery	Enable the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.

Table 12. System setup options—System Logs menu

System Logs	
BIOS Events	Display BIOS events.
Thermal Events	Display Thermal events.
Power Events	Display Power events.



Table 13. System setup options—SupportAssist System Resolution menu

SupportAssist System Resolution	
Auto OS Recovery Threshold	Control the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery tool.
SupportAssist OS Recovery	Enable or disable the boot flow for SupportAssist OS Recovery tool in the even of certain system errors.

System and setup password

You can create a system password and a setup password to secure your computer.

Password type	Description
System password	Password that you must enter to log on to your system.
Setup password	Password that you must enter to access and make changes to the BIOS settings of your computer.

-  **CAUTION: The password features provide a basic level of security for the data on your computer.**
-  **CAUTION: Anyone can access the data stored on your computer if it is not locked and left unattended.**





NOTE: Your computer is shipped with the system and setup password feature is disabled.

Assigning a system password and setup password

You can assign a new **System Password** only when the status is in **Not Set**. To enter the system setup, press F2 immediately after a power-on or re-boot.

- 1 In the **System BIOS** or **System Setup** screen, select **Security** and press Enter. The **Security** screen is displayed.
- 2 Select **System Password** and create a password in the **Enter the new password** field.

Use the following guidelines to assign the system password:

- A password can have up to 32 characters.
- The password can contain the numbers 0 through 9.
- Only lower case letters are valid, upper case letters are not allowed.
- Only the following special characters are allowed: space, ("), (+), (.), (-), (,), (/), (:), ([], (\), (]), (').

- 3 Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
- 4 Press Esc and a message prompts you to save the changes.
- 5 Press Y to save the changes.
The computer reboots.

Deleting or changing an existing system and or setup password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press F2 immediately after a power-on or reboot.

- 1 In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter. The **System Security** screen is displayed.
- 2 In the **System Security** screen, verify that **Password Status** is **Unlocked**.

- 3 Select **System Password**, alter or delete the existing system password and press Enter or Tab.
- 4 Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.



NOTE: If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.

- 5 Press Esc and a message prompts you to save the changes.
- 6 Press Y to save the changes and exit from System Setup.
The computer reboots.

Clearing CMOS settings



CAUTION: Clearing CMOS settings will reset the BIOS settings on your computer.

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Disconnect the [coin-cell battery](#).
- 4 Wait for one minute.
- 5 Connect the [coin-cell battery](#).
- 6 Replace the [battery](#).
- 7 Replace the [base cover](#).

Clearing forgotten passwords

Contact Dell technical support to clear the forgotten passwords, see www.dell.com/contactdell.



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

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



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



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 Power-on the 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 key at the bottom left corner.
Diagnostics front page is displayed.
- 5 Press 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.

System diagnostic lights

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.



NOTE: Hard-drive activity light is supported only on computers shipped with 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 different light patterns and describes what they indicate.

Table 14. Diagnostics

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
3,5	Power sequencing failure
3,6	Flash corruption detected by SBIOS
3,7	ME error

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:

- 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 15. Self-help resources

Information about Dell products and services	www.dell.com
Dell Help & Support app	
Accessing help	In Windows search, type Help and 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.	<ol style="list-style-type: none">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: <ul style="list-style-type: none">• Product specifications• Operating system• Setting up and using your product• Data backup• Troubleshooting and diagnostics	<p>See <i>Me and My Dell</i> at www.dell.com/support/manuals.</p> <p>To locate the <i>Me and My Dell</i> relevant to your product, identify your product through one of the following:</p> <ul style="list-style-type: none">• Select Detect Product.



- Factory and system restore
- BIOS information
- 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.