

# Alienware 13 R3 Service Manual

**Computer Model:** Alienware 13 R3  
**Regulatory Model:** P81G  
**Regulatory Type:** P81G001

A L I E N W A R E™ 

# 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.

---

© 2016 Dell Inc. or its subsidiaries. All rights reserved. This product is protected by U.S. and international copyright and intellectual property laws. Dell and the Dell logo are trademarks of Dell Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

2016 - 10

Rev. A00

# Contents

<b>Before working inside your computer.....</b>	<b>10</b>
Before you begin .....	10
Safety instructions.....	10
Recommended tools.....	11
Screw list.....	12
<b>After working inside your computer.....</b>	<b>14</b>
<b>Removing the base cover.....</b>	<b>15</b>
Procedure.....	15
<b>Replacing the base cover.....</b>	<b>17</b>
Procedure.....	17
<b>Removing the wireless card.....</b>	<b>18</b>
Prerequisites.....	18
Procedure.....	18
<b>Replacing the wireless card.....</b>	<b>20</b>
Procedure.....	20
Post-requisites.....	21
<b>Removing the solid-state drive.....</b>	<b>22</b>
Prerequisites.....	22
Procedure.....	22

<b>Replacing the solid-state drive.....</b>	<b>24</b>
Procedure.....	24
Post-requisites.....	25
<b>Removing the memory modules.....</b>	<b>26</b>
Prerequisites.....	26
Procedure.....	26
<b>Replacing the memory modules.....</b>	<b>28</b>
Procedure.....	28
Post-requisites.....	29
<b>Removing the rear-I/O cover.....</b>	<b>30</b>
Prerequisites.....	30
Procedure.....	30
<b>Replacing the rear-I/O cover.....</b>	<b>32</b>
Procedure.....	32
Post-requisites.....	32
<b>Removing the computer base.....</b>	<b>33</b>
Prerequisites.....	33
Procedure.....	33
<b>Replacing the computer base.....</b>	<b>36</b>
Procedure.....	36
Post-requisites.....	36
<b>Removing the coin-cell battery.....</b>	<b>37</b>
Prerequisites.....	37
Procedure.....	37

<b>Replacing the coin-cell battery.....</b>	<b>39</b>
Procedure.....	39
Post-requisites.....	39
<b>Removing the heat-sink assembly.....</b>	<b>40</b>
Prerequisites.....	40
Procedure.....	40
<b>Replacing the heat-sink assembly.....</b>	<b>42</b>
Procedure.....	42
Post-requisites.....	42
<b>Removing the battery.....</b>	<b>43</b>
Prerequisites.....	43
Procedure.....	43
<b>Replacing the battery.....</b>	<b>45</b>
Procedure.....	45
Post-requisites.....	45
<b>Removing the touch pad.....</b>	<b>46</b>
Prerequisites.....	46
Procedure.....	46
<b>Replacing the touch pad.....</b>	<b>50</b>
Procedure.....	50
Post-requisites.....	50
<b>Removing the system board.....</b>	<b>51</b>
Prerequisites.....	51
Procedure.....	52

<b>Replacing the system board.....</b>	<b>55</b>
Procedure.....	55
Post-requisites.....	56
<b>Removing the speakers.....</b>	<b>57</b>
Prerequisites.....	57
Procedure.....	57
<b>Replacing the speakers.....</b>	<b>59</b>
Procedure.....	59
Post-requisites.....	59
<b>Removing the power-adapter port.....</b>	<b>60</b>
Prerequisites.....	60
Procedure.....	60
<b>Replacing the power-adapter port.....</b>	<b>62</b>
Procedure.....	62
Post-requisites.....	62
<b>Removing the power-button board.....</b>	<b>63</b>
Prerequisites.....	63
Procedure.....	63
<b>Replacing the power-button board.....</b>	<b>65</b>
Procedure.....	65
Post-requisites.....	65
<b>Removing the keyboard.....</b>	<b>66</b>
Prerequisites.....	66
Procedure.....	66

<b>Replacing the keyboard.....</b>	<b>69</b>
Procedure.....	69
Post-requisites.....	69
<b>Removing the display assembly.....</b>	<b>71</b>
Prerequisites.....	71
Procedure.....	71
<b>Replacing the display assembly.....</b>	<b>74</b>
Procedure.....	74
Post-requisites.....	74
<b>Removing the palm rest.....</b>	<b>76</b>
Prerequisites.....	76
Procedure.....	76
<b>Replacing the palm rest.....</b>	<b>78</b>
Procedure.....	78
Post-requisites.....	78
<b>Removing the display bezel.....</b>	<b>79</b>
Prerequisites.....	79
Procedure.....	79
<b>Replacing the display bezel.....</b>	<b>82</b>
Procedure.....	82
Post-requisites.....	82
<b>Removing the camera cable.....</b>	<b>83</b>
Prerequisites.....	83
Procedure.....	83

- Replacing the camera cable..... 85**
  - Procedure..... 85
  - Post-requisites.....85
  
- Removing the camera..... 86**
  - Prerequisites..... 86
  - Procedure..... 86
  
- Replacing the camera..... 88**
  - Procedure..... 88
  - Post-requisites.....88
  
- Removing the display panel..... 89**
  - Prerequisites..... 89
  - Procedure..... 89
  
- Replacing the display panel..... 92**
  - Procedure..... 92
  - Post-requisites..... 92
  
- Removing the display hinges..... 94**
  - Prerequisites..... 94
  - Procedure..... 94
  
- Replacing the display hinges..... 98**
  - Procedure..... 98
  - Post-requisites.....98
  
- Removing the display back-cover and antenna assembly..... 100**
  - Prerequisites..... 100
  - Procedure..... 101

<b>Replacing the display back-cover and antenna assembly.....</b>	<b>102</b>
Procedure.....	102
Post-requisites.....	102
<b>BIOS setup program.....</b>	<b>103</b>
BIOS Overview.....	103
Entering BIOS setup program.....	103
System setup options.....	103
Boot sequence.....	108
Boot options.....	109
Changing boot sequence for the current boot.....	109
Changing boot sequence for future boots.....	110
<b>Flashing the BIOS.....</b>	<b>111</b>
<b>Getting help and contacting Alienware.....</b>	<b>112</b>
Self-help resources.....	112
Contacting Alienware.....	113

# 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.

The shut-down instruction varies depending on the operating system installed on your computer.

– Windows 10: Click **Start** →  **Power** → **Shut down**.

– Windows 8.1: On the **Start** screen, Click the power icon  → **Shut down**.

– Windows 7: Click **Start** → **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.

6 Close the display and turn the computer over.

## 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](http://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](http://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
- Plastic scribe

# Screw list

**Table 1. Screw list**

Component	Secured to	Screw type	Quantity	Screw image
Wireless card	Computer base	M2x3	1	
Solid-state drive	Computer base	M2x3	1	
Rear-I/O cover	Palm-rest assembly	M2.5x7	2	
Computer base	Palm-rest assembly	M2x3	1	
Computer base	Palm-rest assembly	M2.5x6	11	
Computer base	Palm-rest assembly	M2.5x6	2	
Heat-sink assembly	System board	M2x3	7	
Touch-pad bracket	Palm-rest assembly	M2x3	5	
System board	Palm-rest assembly	M2.5x5	2	
Speaker	Palm-rest assembly	M2X3	1	
Power-button board	Palm-rest assembly	M2x3	2	

<b>Component</b>	<b>Secured to</b>	<b>Screw type</b>	<b>Quantity</b>	<b>Screw image</b>
Keyboard bracket	Palm-rest assembly	M2x3	8	
Display assembly	Palm-rest assembly	M2.5x6	4	
Display panel	Palm-rest assembly	M2x3	4	
Display hinges	Display back-cover and antenna assembly	M2.5x3	8	
USB Type-C port bracket	System board	M2.5x5	2	

# 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Loosen the five captive screws that secure the base cover to the computer base.
- 2 Using a plastic scribe, gently pry the base cover to release the tabs on the base cover from the slots on the computer base.
- 3 Lift the base cover off the computer base.



- 4 Using a plastic scribe, disconnect the battery cable from the system board.



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

# 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Connect the battery cable to the system board.
- 2 Slide the tabs on the base cover into the slots on the computer base and snap the base cover into place.
- 3 Tighten the five captive screws that secure the base cover to the computer base.

# 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](http://www.dell.com/regulatory_compliance).

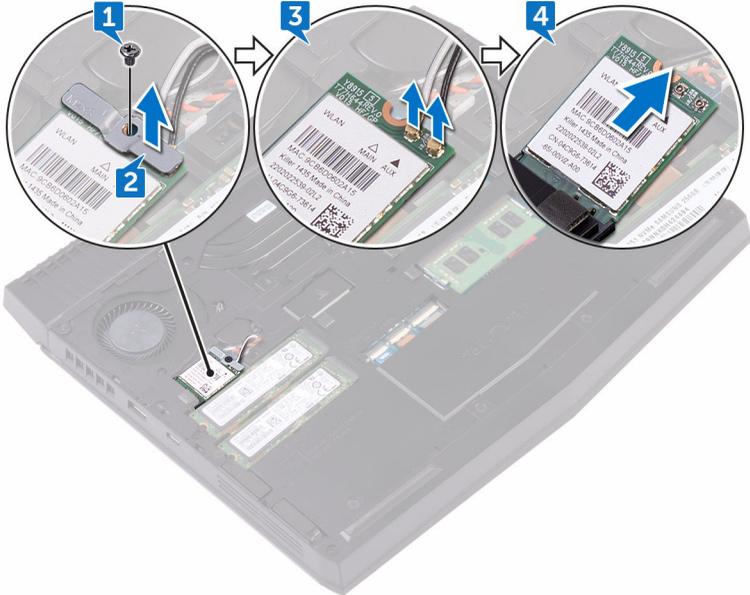
## Prerequisites

Remove the [base cover](#).

## Procedure

- 1 Remove the screw (M2x3) that secures the wireless card and bracket to the computer base.
- 2 Lift the wireless-card bracket off the wireless card.
- 3 Disconnect the antenna cables from the wireless card.

4 Lift and slide the wireless card out of 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](http://www.dell.com/regulatory_compliance).

## Procedure

 **CAUTION:** To avoid damaging 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.
- 2 Slide the wireless card at an angle into the wireless-card slot.
- 3 Connect the antenna cables to the wireless card.

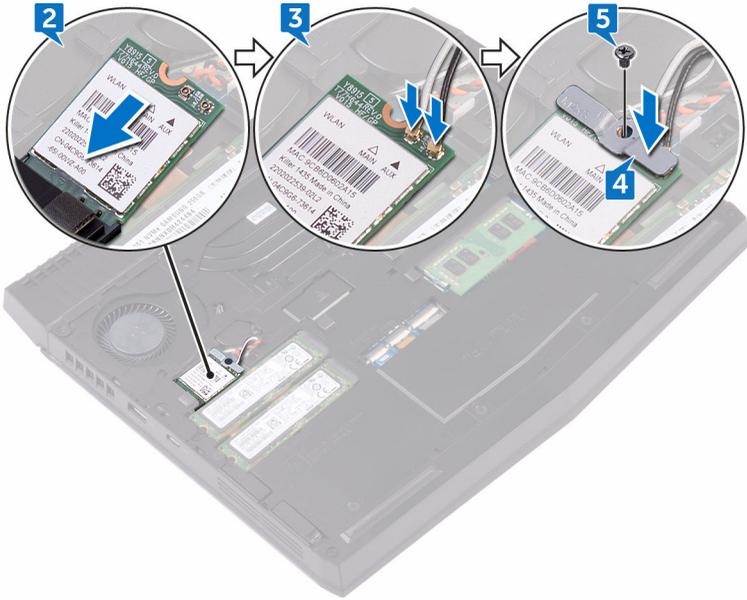
The following table provides the antenna-cable color scheme for the wireless card supported by your computer.

**Table 2. Antenna-cable color scheme**

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

- 4 Align the screw hole on the wireless-card bracket with the screw hole on the wireless card and the computer base.

- 5 Replace the screw (M2x3) that secures the wireless-card bracket to the wireless card and the computer base.



## Post-requisites

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](http://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.

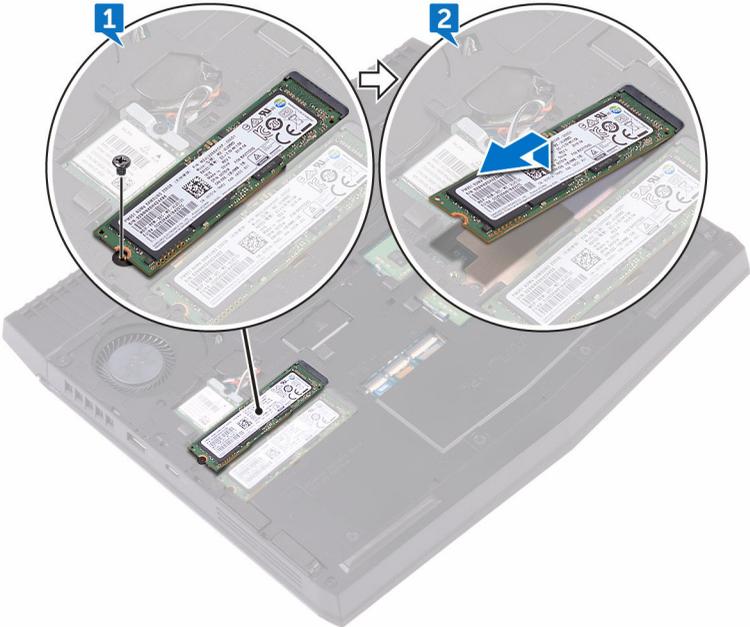
## Prerequisites

Remove the [base cover](#).

## Procedure

- 1 Remove the screw (M2x3) that secures the solid-state drive to the computer base.

2 Lift and slide 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](http://www.dell.com/regulatory_compliance).

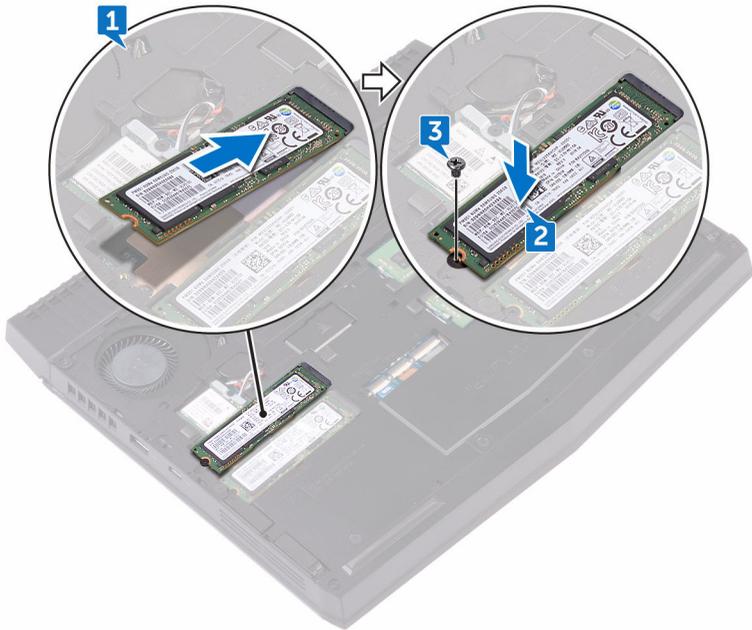
 **CAUTION:** Solid-state drives are fragile. Exercise care when handling the solid-state drive.

## Procedure

 **NOTE:** Adhere the thermal pad on the copper foil area, if the thermal pads are shipped with the solid-state drive.

- 1 Align the notch on the solid-state drive with the tab on the solid-state drive slot and slide the solid-state drive into the solid-state drive slot.
- 2 Press the other end of the solid-state drive to align the screw hole on the solid-state drive with the screw hole on the computer base.

- 3 Replace the screw (M2x3) that secures the solid-state drive to the computer base.



## Post-requisites

Replace the [base cover](#).

# Removing the memory modules

---

 **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](http://www.dell.com/regulatory_compliance).

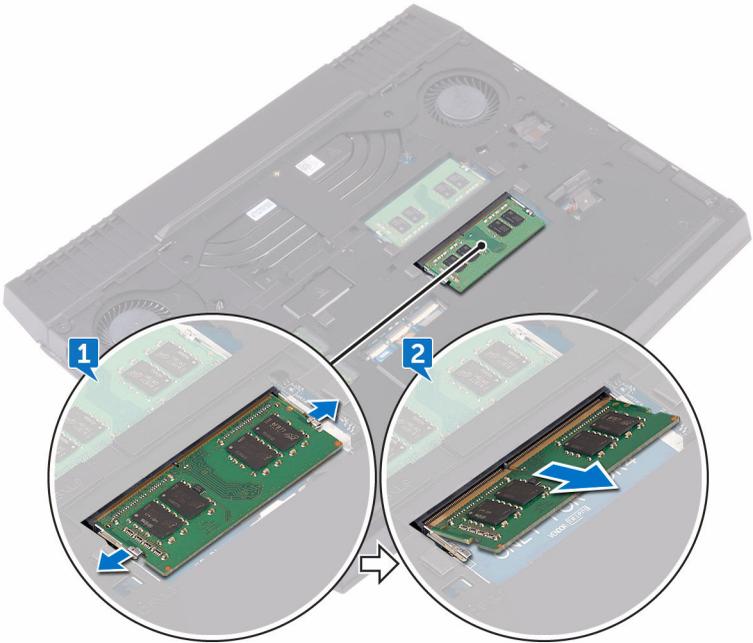
## Prerequisites

Remove the [base cover](#).

## Procedure

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

2 Slide and remove the memory module from the memory-module slot.



# Replacing the memory modules

---

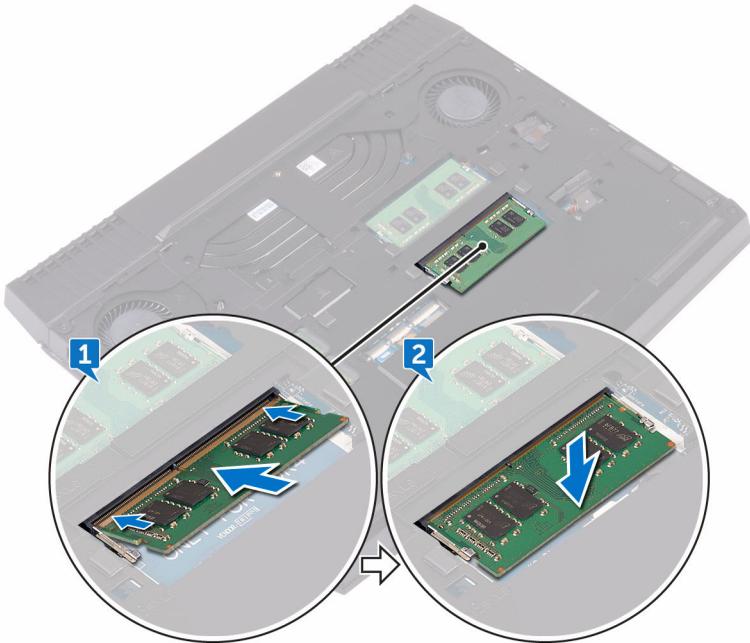
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Procedure

- 1 Align the notch on the memory module with the tab on the memory-module slot and slide the memory module firmly into the slot at an angle.

- 2 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

Replace the [base cover](#).

# Removing the rear-I/O 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](http://www.dell.com/regulatory_compliance).

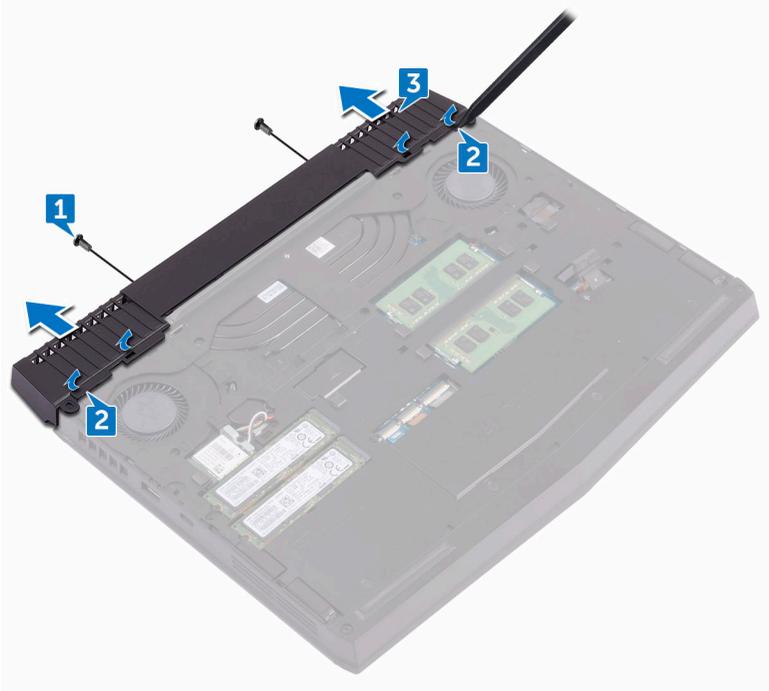
## Prerequisites

Remove the [base cover](#).

## Procedure

- 1 Remove the two screws (M2.5x7) that secure the rear-I/O cover to the palm-rest assembly.
- 2 Using a plastic scribe, gently release the tabs that secure rear-I/O cover to the computer base.

3 Slide and remove the rear-I/O cover from the computer base.



# Replacing the rear-I/O 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the rear-I/O cover into the slots on the computer base and snap the rear-I/O cover into place.
- 2 Replace the two screws (M2.5x7) that secure the rear-I/O cover to the palm-rest assembly.

## Post-requisites

Replace the [base cover](#).

# Removing the computer base

---

 **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](http://www.dell.com/regulatory_compliance).

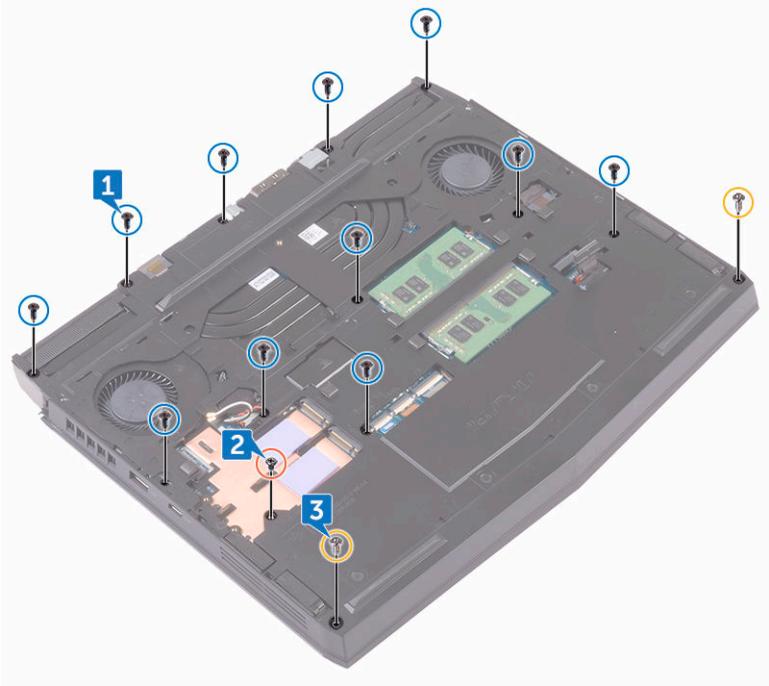
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [solid-state drive](#).
- 3 Remove the [wireless card](#).
- 4 Remove the [rear-I/O cover](#).

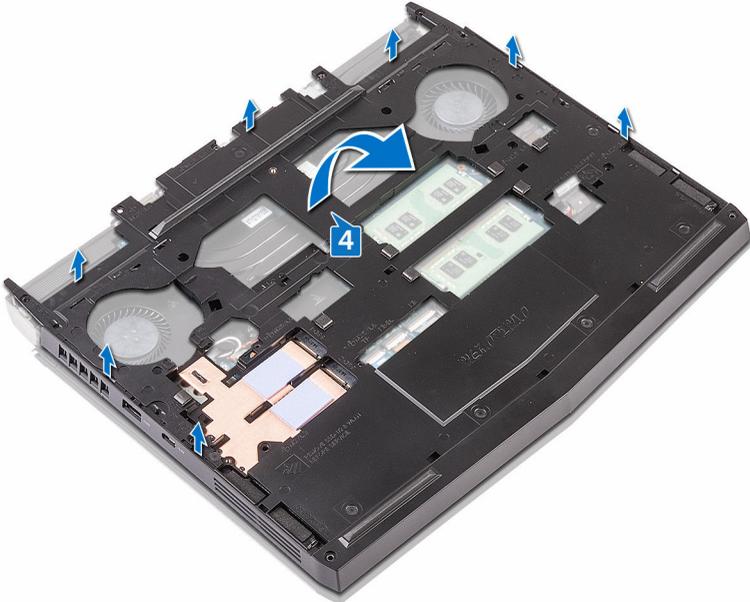
## Procedure

- 1 Remove the eleven (M2.5x6) screws that secure the computer base to the palm-rest assembly.
- 2 Remove the (M2x3) screw that secures the computer base to the palm-rest assembly.

**3** Remove the two (M2.5x6) screws that secure the computer base to the palm-rest assembly.



4 Lift the computer base from the palm-rest assembly.



# Replacing the computer base

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Align the screw holes on the computer base with the screw holes on the palm-rest assembly.
- 2 Replace the two (M2.5x6) screws that secure the computer base to the palm-rest assembly.
- 3 Replace the (M2x3) screw that secures the computer base to the palm-rest assembly.
- 4 Replace the eleven (M2.5x6) screws that secure the computer base to the palm-rest assembly.

## Post-requisites

- 1 Replace the [rear-I/O cover](#).
- 2 Replace the [wireless card](#).
- 3 Replace the [solid-state drive](#).
- 4 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](http://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.

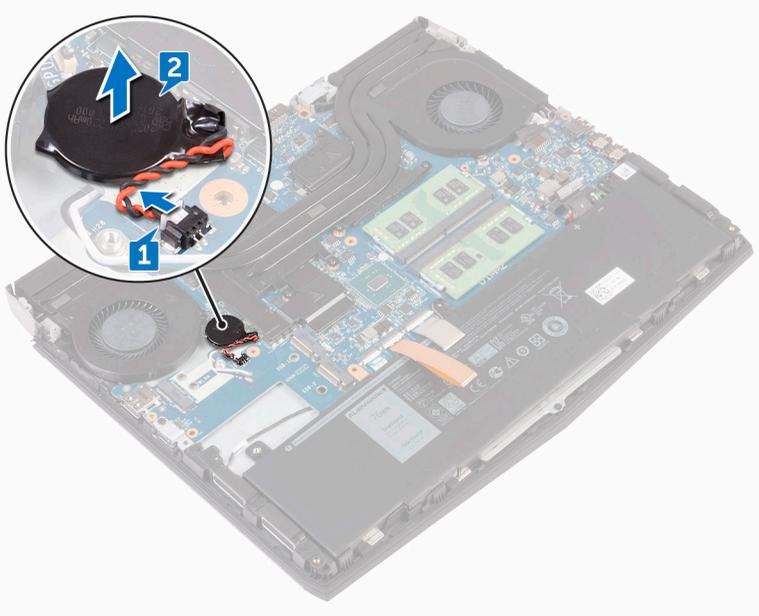
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [rear-I/O cover](#).
- 5 Remove the [computer base](#).

## Procedure

- 1 Disconnect the coin-cell battery cable from the system board.

- 
- 2 Gently peel off the coin-cell battery along with its cable off the palm-rest assembly.



# 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Adhere the coin-cell battery to the palm-rest assembly.
- 2 Connect the coin-cell battery cable to the system board.

## Post-requisites

- 1 Replace the [computer base](#).
- 2 Replace the [rear-I/O cover](#).
- 3 Replace the [solid-state drive](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).

# Removing the heat-sink 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](http://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.

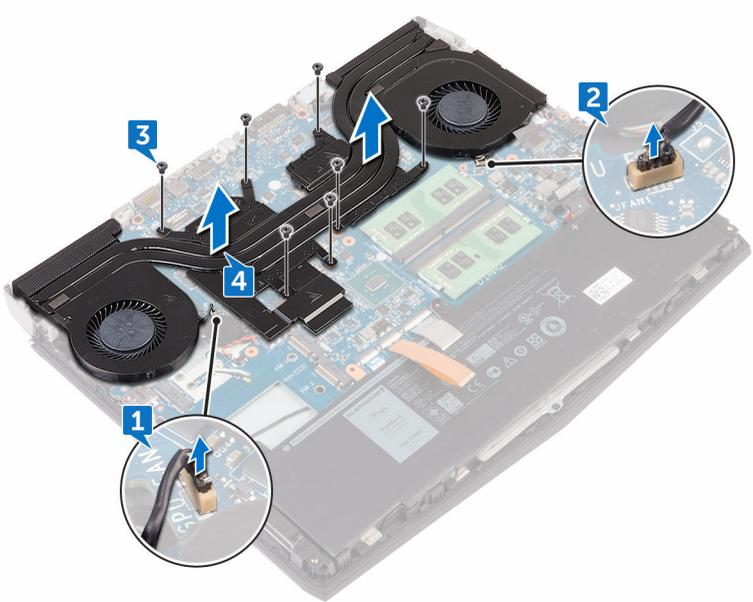
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [rear-I/O cover](#).
- 5 Remove the [computer base](#).

## Procedure

- 1 Disconnect the left-fan cable from the system board.
- 2 Disconnect the right-fan cable from the system board.
- 3 In sequential order (as indicated on the heat-sink assembly), remove the seven screws (M2x3) that secure the heat-sink assembly to the system board.

4 Lift the heat-sink assembly off the system board.



# Replacing the heat-sink 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](http://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 fan are reinstalled together. If either the system board or the fan 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 assembly with the screw holes on the system board.
- 2 In sequential order (indicated on the heat-sink assembly), replace the seven screws (M2x3) that secure the heat-sink assembly to the system board.
- 3 Connect the right-fan cable to the respective connector on the system board.
- 4 Connect the left-fan cable to the respective connector on the system board.

## Post-requisites

- 1 Replace the [computer base](#).
- 2 Replace the [rear-I/O cover](#).
- 3 Replace the [solid-state drive](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).

# 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](http://www.dell.com/regulatory_compliance).

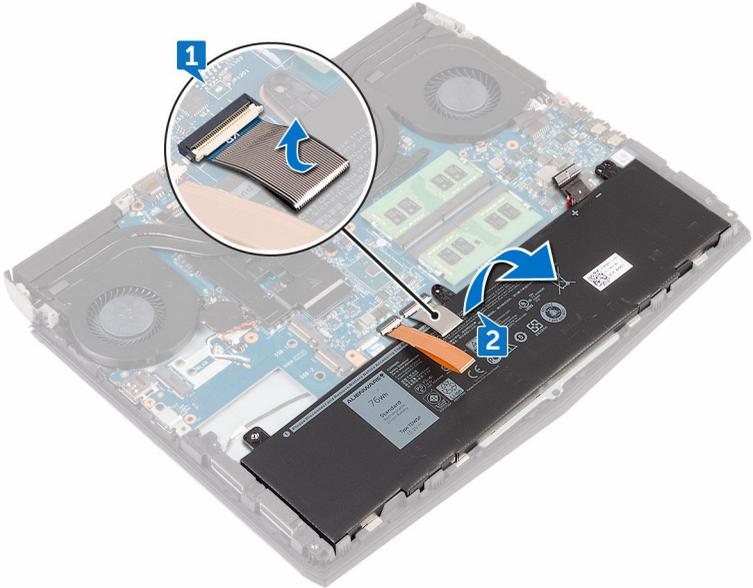
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [rear-I/O cover](#).
- 5 Remove the [computer base](#).

## Procedure

- 1 Peel off the keyboard connector from the battery.

2 Lift the battery off the palm-rest assembly.



# 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](http://www.dell.com/regulatory_compliance).

## Procedure

 **CAUTION:** Ensure the keyboard and keyboard-backlit cables are not under the battery.

- 1 Using the alignment post, place the battery on the palm-rest assembly.
- 2 Adhere the keyboard connector that secures the battery to the palm-rest assembly.

## Post-requisites

- 1 Replace the [computer base](#).
- 2 Replace the [rear-I/O cover](#).
- 3 Replace the [solid-state drive](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).

# Removing the touch pad

---

 **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](http://www.dell.com/regulatory_compliance).

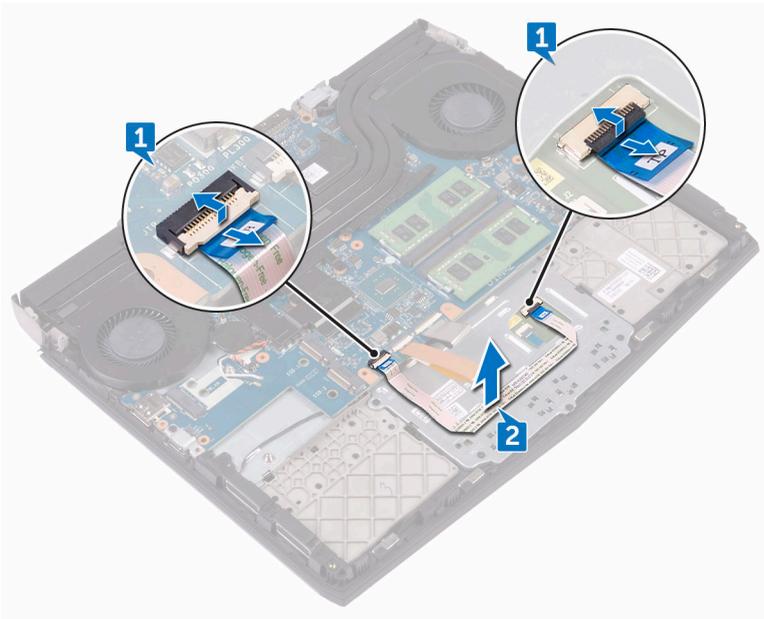
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [rear-I/O cover](#).
- 5 Remove the [computer base](#).
- 6 Remove the [battery](#).

## Procedure

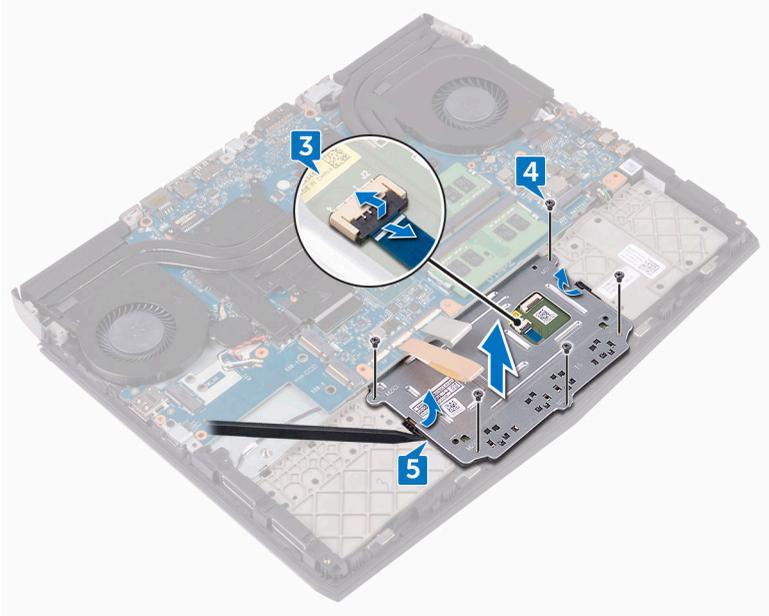
- 1 Open the latches and disconnect the touch-pad cable from the system board and touch pad.

- 2 Peel off the touch-pad cable from the touch-pad bracket.

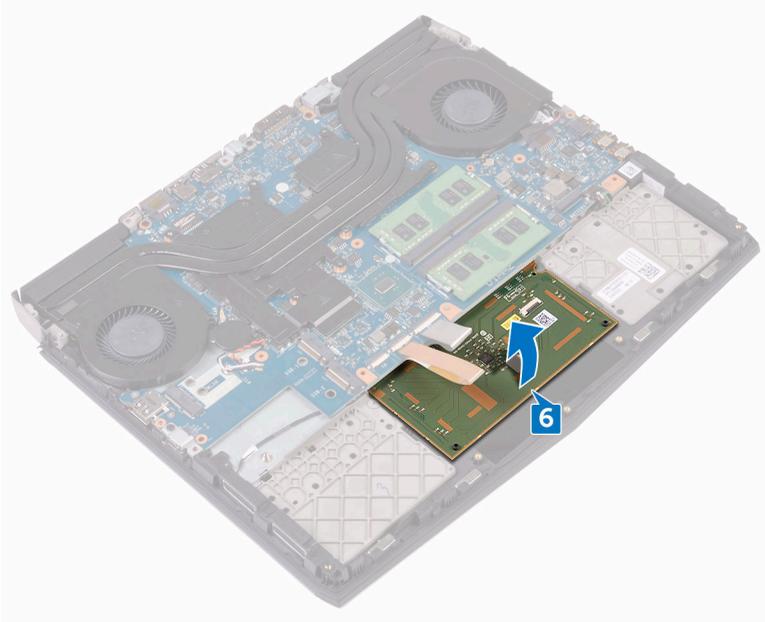


- 3 Open the latch and disconnect the touch-pad buttons cable from the touch pad.
- 4 Remove the five screws (M2x3) that secure the touch-pad bracket to the palm-rest assembly.

5 Using a plastic scribe, lift the touch-pad bracket off the palm-rest assembly.



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



# Replacing the touch pad

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

 **CAUTION:** Ensure the keyboard and keyboard-backlit cables are not under the touch pad.

- 1 Using the alignment posts on the palm-rest assembly, place the touch pad on the palm-rest assembly.
- 2 Align the screw holes on the touch-pad bracket with the screw holes on the palm-rest assembly.
- 3 Replace the five screws (M2x3) that secure the touch-pad bracket to the palm-rest assembly.
- 4 Slide the touch-pad buttons cable into the respective connector on the touch pad and close the latch to secure the cable.
- 5 Slide the touch-pad cables into their respective connectors on the system board and touch pad, and close the latches to secure the cable.

## Post-requisites

- 1 Replace the [battery](#).
- 2 Replace the [computer base](#).
- 3 Replace the [rear-I/O cover](#).
- 4 Replace the [solid-state drive](#).
- 5 Replace the [wireless card](#).
- 6 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](http://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.

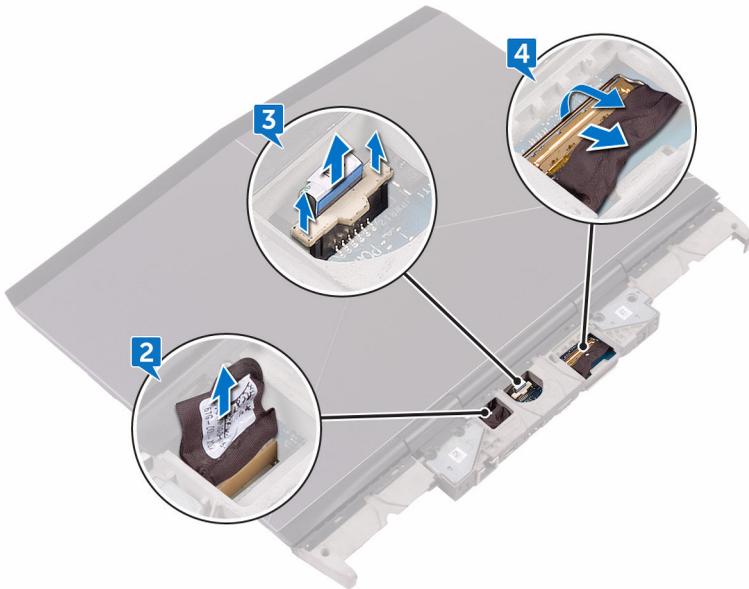
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [battery](#).
- 9 Remove the [heat-sink assembly](#).

# Procedure

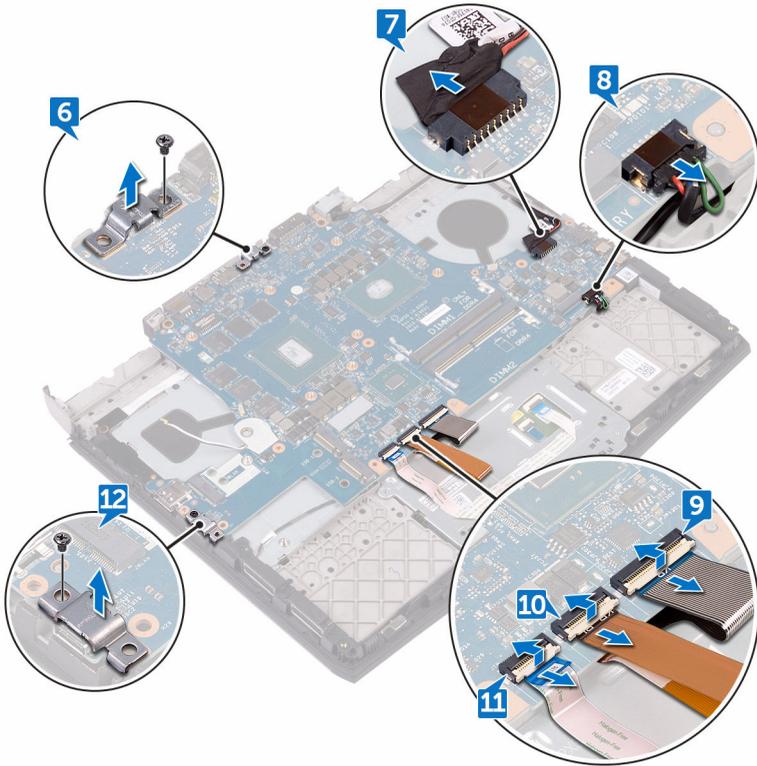
**△ CAUTION: Place the computer on a clean, flat surface.**

- 1 Turn the computer over.
- 2 Disconnect the logo-board cable from the system board.
- 3 Using the pull-tab, disconnect the power-button board cable from the system board.
- 4 Open the latch and disconnect the display cable from the system board.



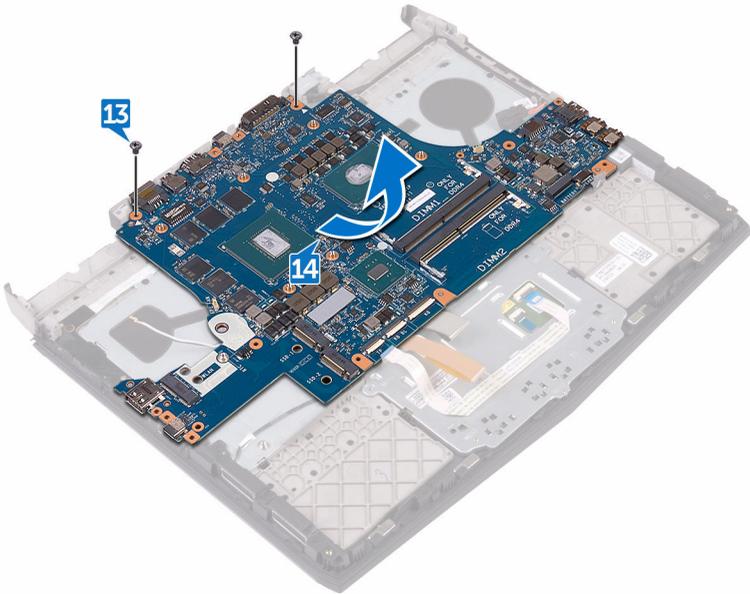
- 5 Turn the computer over.
- 6 Remove the screw (M2.5x5) that secures the USB Type-C port bracket to the system board and lift the USB Type-C port bracket off the system board.
- 7 Disconnect the power-adapter port cable from the system board.
- 8 Disconnect the speaker cable from the system board.
- 9 Open the latch and disconnect the keyboard cable from the system board.
- 10 Open the latch and disconnect the keyboard-backlight cable from the system board.

- 11 Open the latch and disconnect the touch-pad cable from the system board.
- 12 Remove the screw (M2.5x5) that secures the USB Type-C port bracket to the system board and lift the USB Type-C port bracket off the system board.



- 13 Remove the two screws (M2.5x5) that secure the system board to the palm-rest assembly.

14 Lift the system board off the palm-rest 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](http://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:** Ensure that no cables are under the system board.

- 1 Align the screw holes on the system board with the screw holes on the palm-rest assembly.
- 2 Replace the two screws (M2.5x5) that secure the system-board to the palm-rest assembly.
- 3 Align the screw hole on the USB Type-C port bracket with the screw hole on the system board on the back and right side of your computer.
- 4 Replace the screw (M2.5x5) that secures the USB Type-C port bracket to the system board on the back and right side of your computer.
- 5 Slide the touch-pad cable into the connector on the system board and close the latch to secure the cable.
- 6 Slide the keyboard-backlight cable into the connector on the system board and close the latch to secure the cable.
- 7 Slide the keyboard cable into the connector on the system board and close the latch to secure the cable.
- 8 Connect the speaker cable to the system board.
- 9 Connect the power-adaptor port cable to the system board.

- 10 Turn the computer over.
- 11 Slide the display cable into the connector on the system board and close the latch to secure the cable.
- 12 Connect the power-button board cable to the system board.
- 13 Connect the logo-board cable to the system board.

## Post-requisites

- 1 Replace the [heat-sink assembly](#).
- 2 Replace the [battery](#).
- 3 Replace the [coin-cell battery](#).
- 4 Replace the [computer base](#).
- 5 Replace the [rear-I/O cover](#).
- 6 Replace the [memory modules](#).
- 7 Replace the [solid-state drive](#).
- 8 Replace the [wireless card](#).
- 9 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](http://www.dell.com/regulatory_compliance).

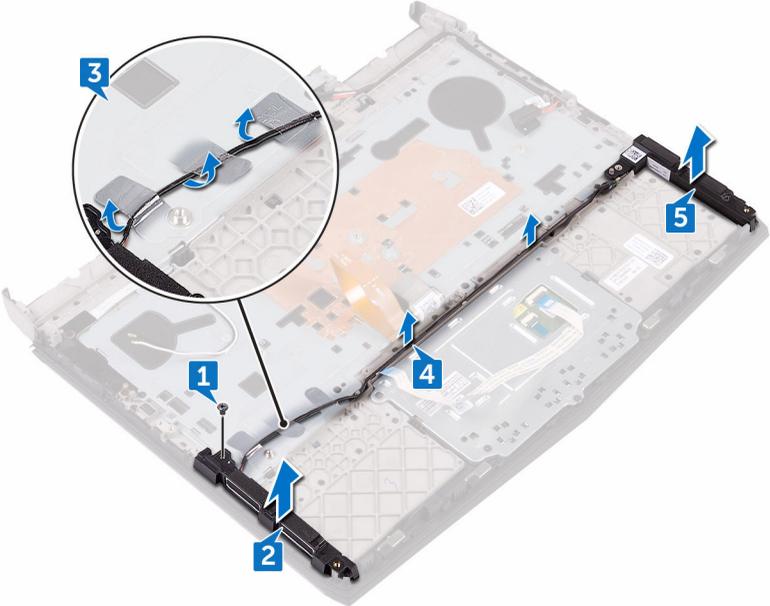
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [battery](#).
- 9 Remove the [heat-sink assembly](#).
- 10 Remove the [system board](#).

## Procedure

- 1 Remove the screw (M2x3) that secures the speaker to the palm-rest assembly.
- 2 Lift the left speaker off the palm-rest assembly.
- 3 Peel off the tape that secures the speaker cable to the palm-rest assembly.
- 4 Remove the speaker cable from the routing guides on the palm-rest assembly.

5 Lift the right speaker off the palm-rest 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Using the alignment posts, place the right speaker on the palm-rest assembly.
- 2 Route the speaker cable through the routing guides on palm-rest assembly.



**NOTE:** Move the keyboard and keyboard-backlit cables out of the way.

- 3 Using the alignment posts, place the left speaker on the palm-rest assembly.
- 4 Adhere the tape that secures the speaker cable to the palm-rest assembly.
- 5 Replace the screw (M2x3) that secures the speaker to the palm-rest assembly.

## Post-requisites

- 1 Replace the [system board](#).
- 2 Replace the [heat-sink assembly](#).
- 3 Replace the [battery](#).
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [computer base](#).
- 6 Replace the [rear-I/O cover](#).
- 7 Replace the [memory modules](#).
- 8 Replace the [solid-state drive](#).
- 9 Replace the [wireless card](#).
- 10 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](http://www.dell.com/regulatory_compliance).

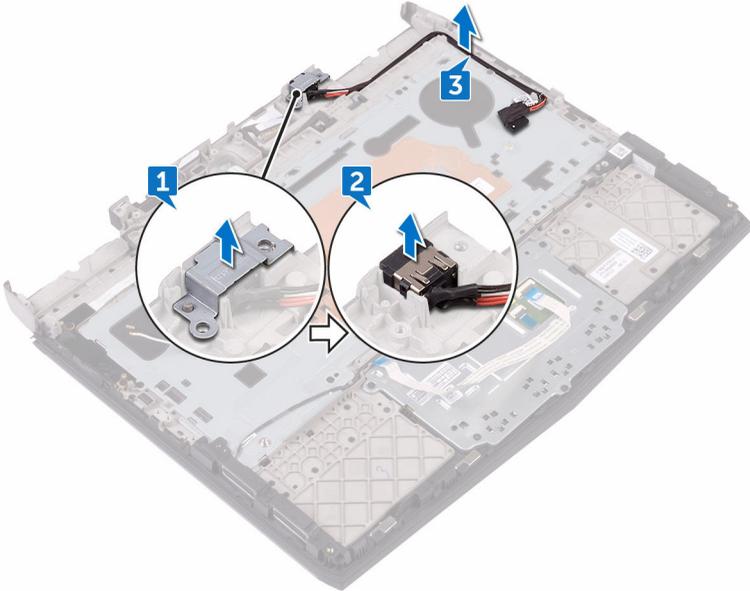
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [solid-state drive](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).

## Procedure

- 1 Lift the power-adapter port bracket off the power-adapter port.
- 2 Lift the power-adapter port off the palm-rest assembly.

**3** Remove the cable from the routing guides on 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the power-adapter port into the slot on the palm-rest assembly.
- 2 Place the power-adapter port bracket on the power-adapter port.
- 3 Route the power-adapter port cable through the routing guides on the palm-rest assembly.

## Post-requisites

- 1 Replace the [system board](#).
- 2 Replace the [battery](#).
- 3 Replace the [heat-sink assembly](#).
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [computer base](#).
- 6 Replace the [rear-I/O cover](#).
- 7 Replace the [solid-state drive](#).
- 8 Replace the [memory modules](#).
- 9 Replace the [wireless card](#).
- 10 Replace the [base cover](#).

# Removing the power-button 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](http://www.dell.com/regulatory_compliance).

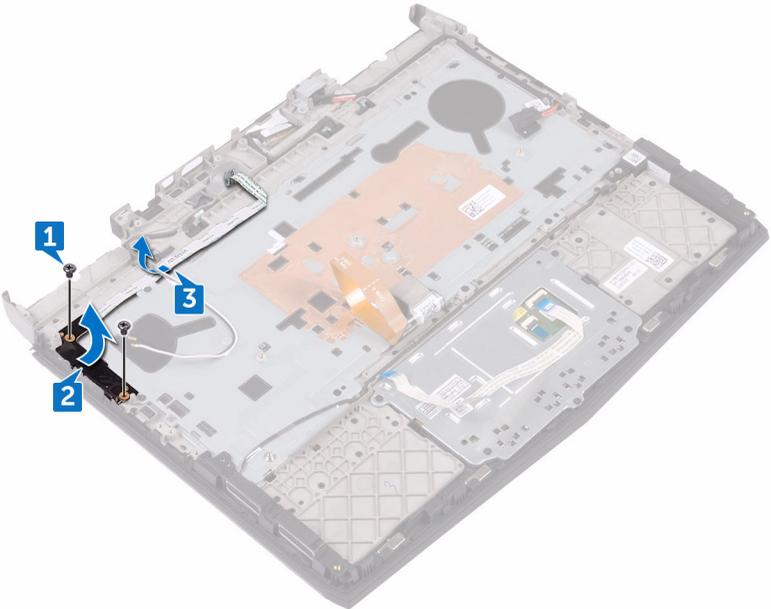
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [solid-state drive](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).

## Procedure

- 1 Remove the two screws (M2x3) that secure the power-button board to the palm-rest assembly.
- 2 Lift the power-button board, along with its cable, off the palm-rest assembly.

**3** Peel the power-button board cable from the palm-rest assembly.



# Replacing the power-button 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Using the alignment posts, place the power-button board on the palm-rest assembly.
- 2 Adhere the power-button board cable to the palm-rest assembly.
- 3 Align the screw holes on the power-button board with the screw holes on the palm-rest assembly.
- 4 Replace the two screws (M2x3) that secure the power-button board to the palm-rest assembly.

## Post-requisites

- 1 Replace the [system board](#).
- 2 Replace the [battery](#).
- 3 Replace the [heat-sink assembly](#).
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [computer base](#).
- 6 Replace the [rear-I/O cover](#).
- 7 Replace the [solid-state drive](#).
- 8 Replace the [memory modules](#).
- 9 Replace the [wireless card](#).
- 10 Replace the [base cover](#).

# Removing the keyboard

---

 **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](http://www.dell.com/regulatory_compliance).

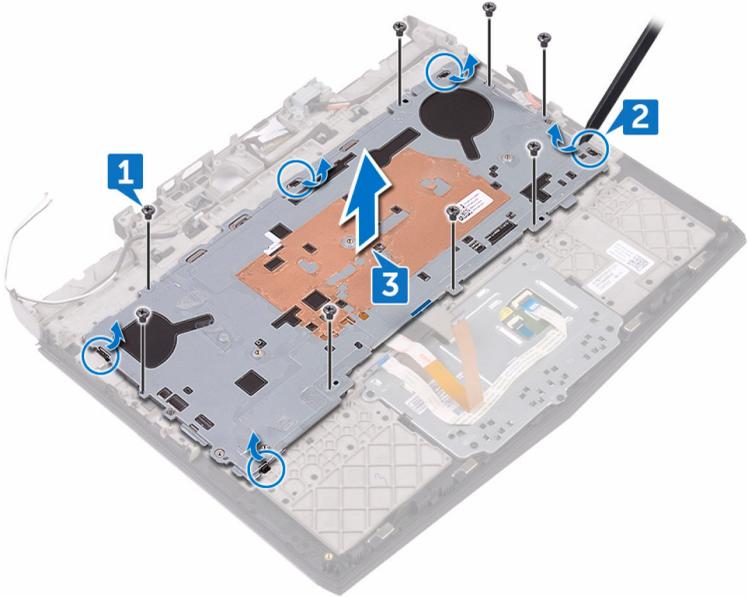
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).
- 11 Remove the [speakers](#).
- 12 Remove the [power-button board](#).

## Procedure

- 1 Remove the eight screws (M2x3) that secure the keyboard bracket to the palm-rest assembly.
- 2 Using a plastic scribe, pry the keyboard bracket off the palm-rest assembly.

3 Lift the keyboard bracket off the palm-rest assembly.



- 4 Lift the keyboard at an angle and remove it from the tabs on the palm-rest assembly.



# Replacing the keyboard

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

 **CAUTION:** To avoid damaging the keyboard, do not place any cables under it.

- 1 Insert the tabs on the keyboard into the slots on the palm-rest assembly.
- 2 Align the tabs on the palm-rest assembly to the slots on the keyboard bracket and snap into place.
- 3 Align the screw holes on the keyboard bracket with the screw holes on the palm-rest assembly.
- 4 Replace the eight screws (M2x3) that secure the keyboard bracket to the palm-rest assembly.

## Post-requisites

- 1 Replace the [power-button board](#).
- 2 Replace the [speakers](#).
- 3 Replace the [system board](#).
- 4 Replace the [battery](#).
- 5 Replace the [heat-sink assembly](#).
- 6 Replace the [coin-cell battery](#).
- 7 Replace the [computer base](#).
- 8 Replace the [rear-I/O cover](#).
- 9 Replace the [memory modules](#).
- 10 Replace the [solid-state drive](#).

- 11 Replace the [wireless card](#).
- 12 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](http://www.dell.com/regulatory_compliance).

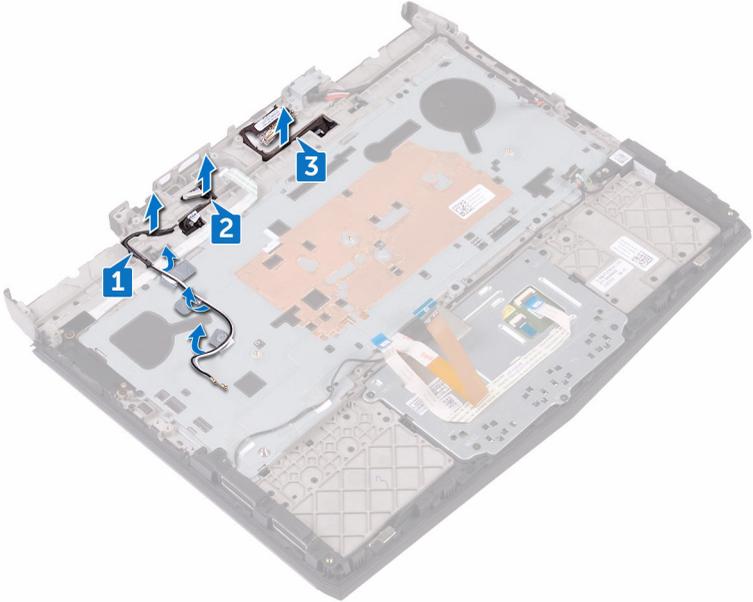
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).

## Procedure

- 1 Remove the antenna cables from the routing guides on the palm-rest assembly.
- 2 Remove the logo-board cable from the routing guides on the palm-rest assembly.

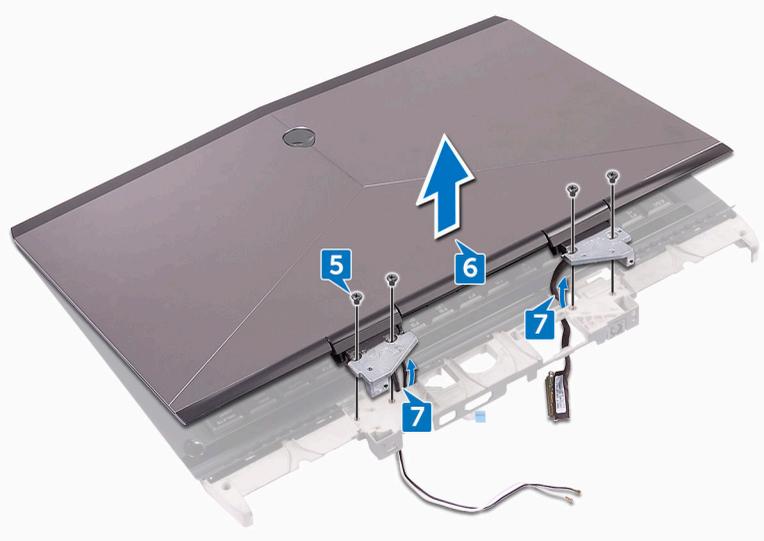
- 3 Remove the display cable from the routing guides on the palm-rest assembly.



**⚠ CAUTION: Place the computer on a clean, flat surface.**

- 4 Turn the computer over.
- 5 Remove the four screws (M2.5x6) that secure the display assembly to the palm-rest assembly.
- 6 Lift the display assembly off the palm-rest assembly.

- 7 Remove the cables from the routing holes on the palm-rest assembly.



- 8 Place the display assembly on a clean, flat surface.



# 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Route the cables through the routing holes on the palm-rest assembly.
- 2 Align the screw holes on the display hinges with the screw holes on the palm-rest assembly.
- 3 Replace the four screws (M2.5x6) that secure the display assembly to the palm-rest assembly.
- 4 Turn the computer over.
- 5 Route the display cable through the routing guides on the palm-rest assembly.
- 6 Route the logo-board cable through the routing guides on the palm-rest assembly.
- 7 Route the antenna cables through the routing guides on the palm-rest assembly.

## Post-requisites

- 1 Replace the [system board](#).
- 2 Replace the [battery](#).
- 3 Replace the [heat-sink assembly](#).
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [computer base](#).
- 6 Replace the [rear-I/O cover](#).
- 7 Replace the [memory modules](#).
- 8 Replace the [solid-state drive](#).

- 9 Replace the [wireless card](#).
- 10 Replace the [base cover](#).

# Removing the palm rest

---

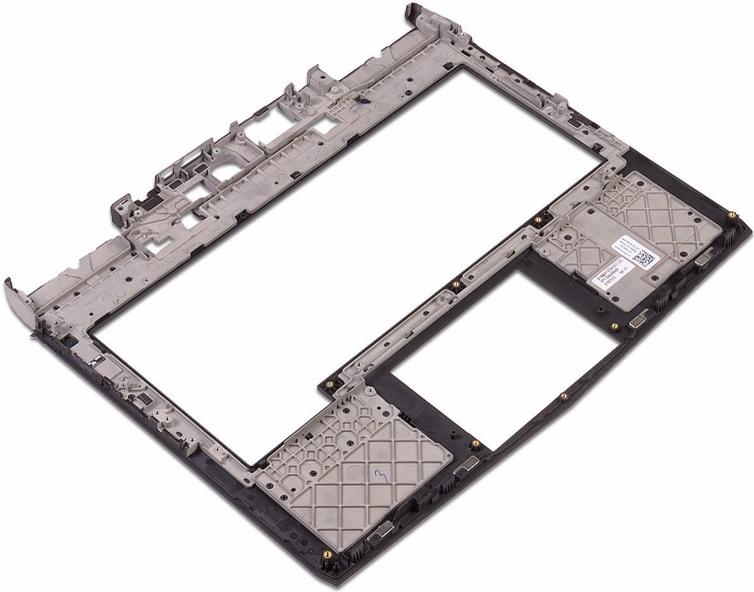
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).
- 11 Remove the [speakers](#).
- 12 Remove the [touch pad](#).
- 13 Remove the [display assembly](#).
- 14 Remove the [keyboard](#).
- 15 Remove the [power-adaptor port](#).
- 16 Remove the [power-button board](#).

## Procedure

After performing all the 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](http://www.dell.com/regulatory_compliance).

## Procedure

Place the palm rest on a flat surface.

## Post-requisites

- 1 Replace the [power-button board](#).
- 2 Replace the [power-adapter port](#).
- 3 Replace the [keyboard](#).
- 4 Replace the [display assembly](#).
- 5 Replace the [touch pad](#).
- 6 Replace the [speakers](#).
- 7 Replace the [system board](#).
- 8 Replace the [battery](#).
- 9 Replace the [heat-sink assembly](#).
- 10 Replace the [coin-cell battery](#).
- 11 Replace the [computer base](#).
- 12 Replace the [rear-I/O cover](#).
- 13 Replace the [memory modules](#).
- 14 Replace the [solid-state drive](#).
- 15 Replace the [wireless card](#).
- 16 Replace the [base cover](#).

# Removing the display bezel

---

 **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](http://www.dell.com/regulatory_compliance).

## Prerequisites

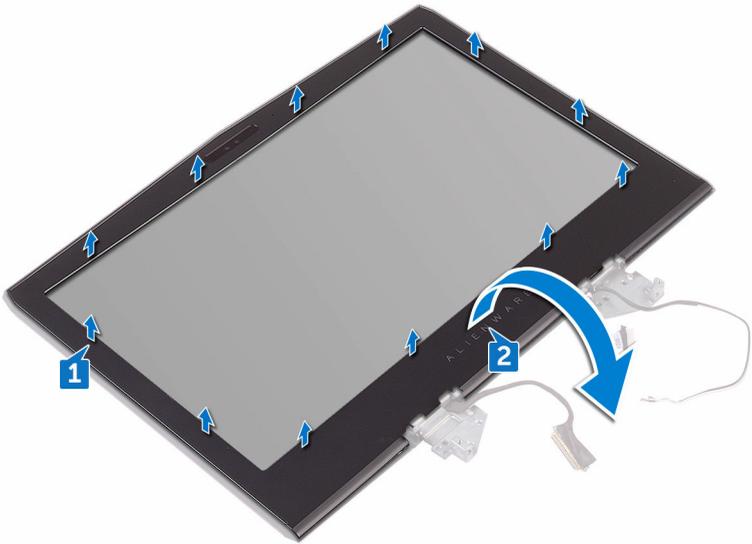
 **NOTE:** These instructions are applicable only for laptops with a non-touch screen display.

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [battery](#).
- 9 Remove the [heat-sink assembly](#).
- 10 Remove the [system board](#).
- 11 Remove the [display assembly](#).

## Procedure

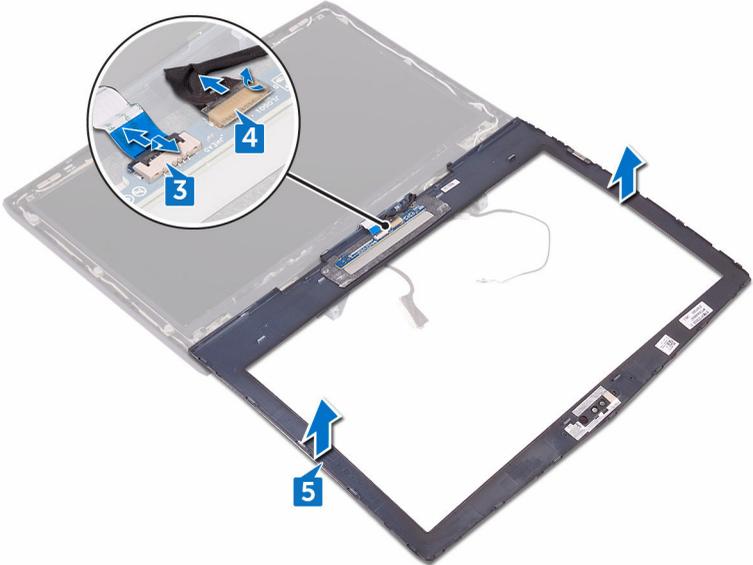
- 1 Using your fingertips, carefully pry up the inside edges of the display bezel.

- 2 Carefully lift the display bezel and turn it over.



- 3 Open the latch and disconnect the alien head logo-board cable from the logo board.
- 4 Peel off the tape that secures the logo-board cable to the logo board and disconnect the logo-board cable from the logo board.

5 Lift the display bezel off the display assembly.



# Replacing the display bezel

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Place the display assembly on a clean and flat surface.
- 2 Connect the logo-board cable to the logo board.
- 3 Adhere the tape that secures the logo-board cable to the logo board.
- 4 Slide the alien head logo-board cable into the logo board and close the latch to secure the cable.
- 5 Carefully turn the display bezel over.
- 6 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 [system board](#).
- 3 Replace the [heat-sink assembly](#).
- 4 Replace the [battery](#).
- 5 Replace the [coin-cell battery](#).
- 6 Replace the [computer base](#).
- 7 Replace the [rear-I/O cover](#).
- 8 Replace the [memory modules](#).
- 9 Replace the [solid-state drive](#).
- 10 Replace the [wireless card](#).
- 11 Replace the [base cover](#).

# Removing the camera cable

---

 **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](http://www.dell.com/regulatory_compliance).

## Prerequisites

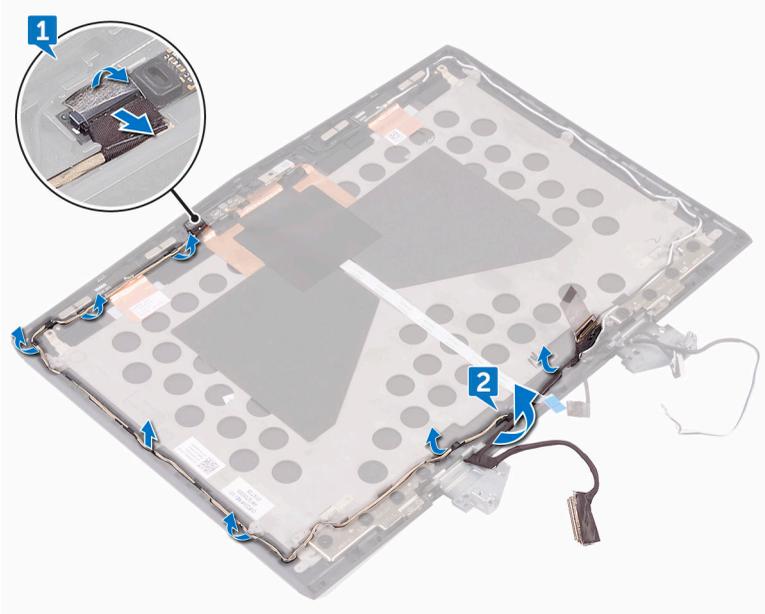
 **NOTE:** These instructions are applicable only for laptops with a non-touch screen display.

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).
- 11 Remove the [display assembly](#).
- 12 Remove the [display bezel](#).
- 13 Remove the [display panel](#).
- 14 Remove the [display hinges](#).

## Procedure

- 1 Peel the tape that secures the camera cable to the camera module and disconnect the camera cable from the camera module.

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



# Replacing the camera cable

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Route the camera cable through the routing guides on the display back-cover and antenna assembly.
- 2 Connect the camera cable to the camera module.

## Post-requisites

- 1 Replace the [display hinges](#).
- 2 Replace the [display panel](#).
- 3 Replace the [display bezel](#).
- 4 Replace the [display assembly](#).
- 5 Replace the [system board](#).
- 6 Replace the [battery](#).
- 7 Replace the [heat-sink assembly](#).
- 8 Replace the [coin-cell battery](#).
- 9 Replace the [computer base](#).
- 10 Replace the [rear-I/O cover](#).
- 11 Replace the [memory modules](#).
- 12 Replace the [solid-state drive](#).
- 13 Replace the [wireless card](#).
- 14 Replace the [base cover](#).

# Removing the camera

---

 **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](http://www.dell.com/regulatory_compliance).

## Prerequisites

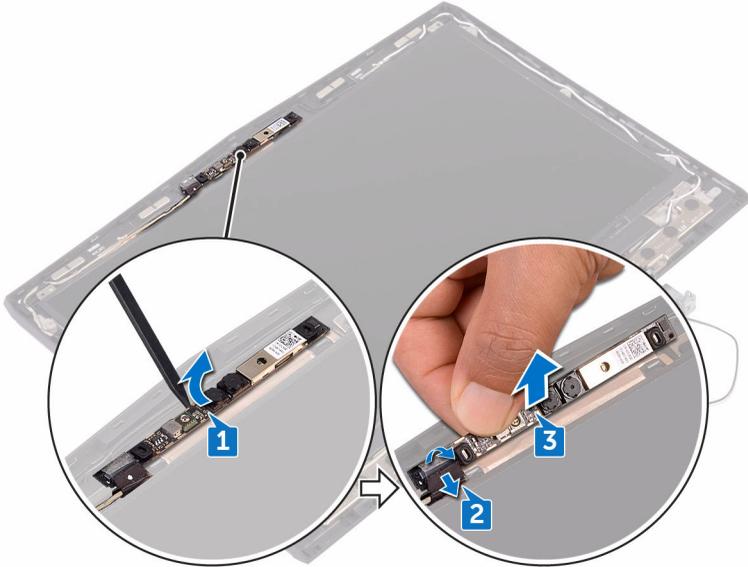
 **NOTE:** These instructions are applicable only for laptops with a non-touch screen display.

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [solid-state drive](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [battery](#).
- 9 Remove the [system board](#).
- 10 Remove the [display assembly](#).
- 11 Remove the [display bezel](#).

## Procedure

- 1 Using a plastic scribe, pry the camera module from the display back-cover and antenna assembly.
- 2 Peel the tape that secures the camera cable to the camera module and disconnect the camera cable from the camera module.

- 3 Lift the camera module from the display back-cover and antenna assembly.



- 4 Follow the procedure in step 2 in [Removing the display back-cover and antenna assembly](#) to remove the camera cable.

# Replacing the camera

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Using the alignment posts, adhere the camera module to the display back-cover and antenna assembly.
- 2 Connect the camera cable to the camera module.
- 3 Adhere the tape that secures the camera cable to the camera module.

## Post-requisites

- 1 Replace the [display bezel](#).
- 2 Replace the [display assembly](#).
- 3 Replace the [system board](#).
- 4 Replace the [battery](#).
- 5 Replace the [coin-cell battery](#).
- 6 Replace the [computer base](#).
- 7 Replace the [rear-I/O cover](#).
- 8 Replace the [solid-state drive](#).
- 9 Replace the [memory modules](#).
- 10 Replace the [wireless card](#).
- 11 Replace the [base cover](#).

# Removing the display panel

---

 **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](http://www.dell.com/regulatory_compliance).

## Prerequisites

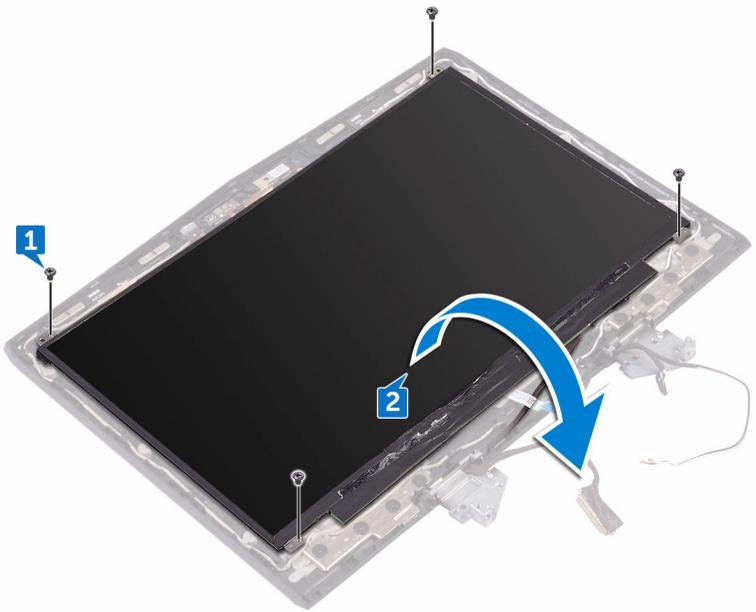
 **NOTE:** These instructions are applicable only for laptops with a non-touch screen display.

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).
- 11 Remove the [display assembly](#).
- 12 Remove the [display bezel](#).
- 13 Remove the [camera](#).

## Procedure

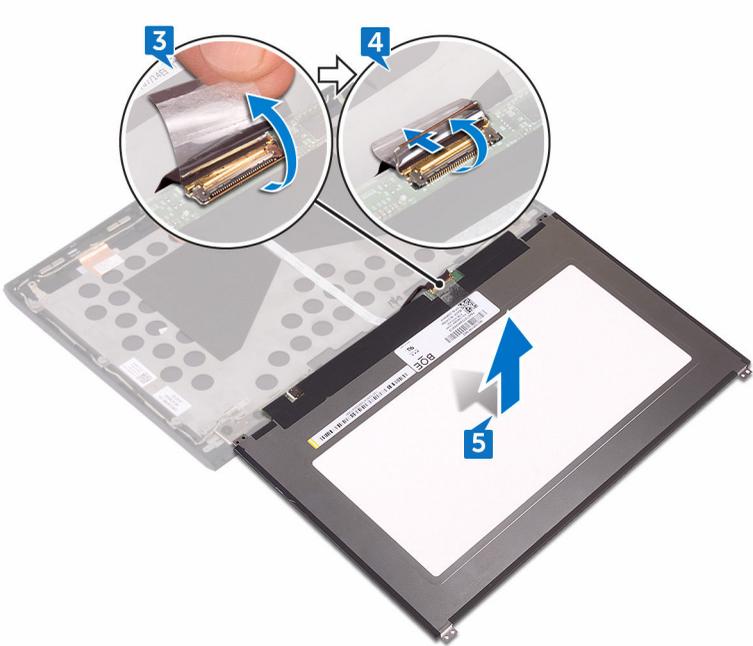
- 1 Remove the four screws (M2x3) that secure the display panel to the display back-cover and antenna assembly.

- 
- 2 Gently lift the display panel and turn it over.



- 
- 
- 3 Peel the tape that secures the display cable to the display panel.
- 4 Open the latch and disconnect the display cable from the display panel.

5 Lift the display panel off the display back-cover.



# Replacing the display panel

---

 **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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the display cable into the connector on the display panel and close the latch to secure the cable.
- 2 Adhere the tape that secures the display cable to the display panel.
- 3 Turn the display panel over and gently place it on the display back-cover.

 **CAUTION:** Ensure that no cables are under the display panel.

- 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 [camera](#).
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [system board](#).
- 5 Replace the [battery](#).
- 6 Replace the [heat-sink assembly](#).
- 7 Replace the [coin-cell battery](#).
- 8 Replace the [computer base](#).
- 9 Replace the [rear-I/O cover](#).
- 10 Replace the [memory modules](#).

- 11** Replace the [solid-state drive](#).
- 12** Replace the [wireless card](#).
- 13** Replace the [base cover](#).

# Removing the display hinges

---

 **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](http://www.dell.com/regulatory_compliance).

## Prerequisites

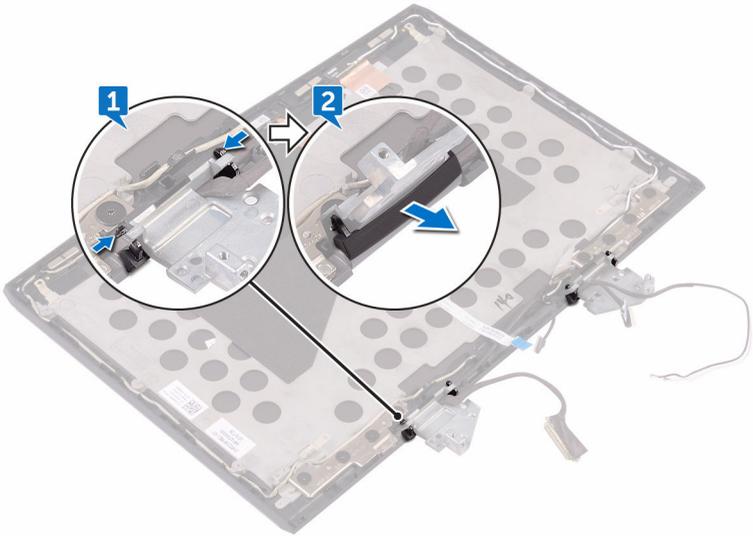
 **NOTE:** These instructions are applicable only for laptops with a non-touch screen display.

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).
- 11 Remove the [display assembly](#).
- 12 Remove the [display bezel](#).
- 13 Remove the [display panel](#).

## Procedure

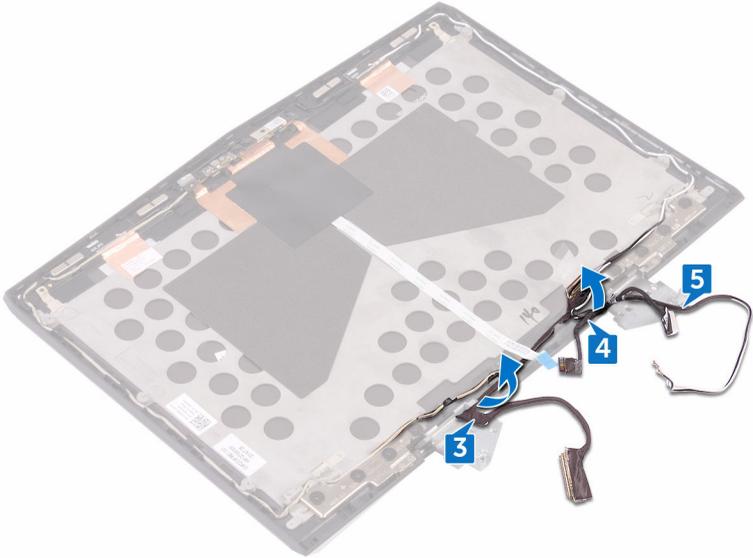
- 1 Press the hinge caps on both the edges to release the hinge caps from the hinge.

- 2 Remove the hinge caps off the hinges.



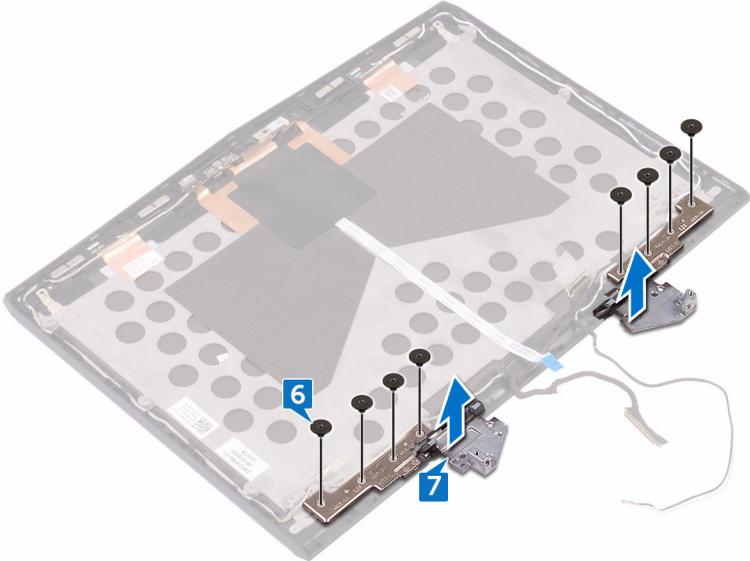
- 3 Remove the display cable from the routing guide on the display back-cover and antenna assembly.
- 4 Remove the logo-board cable from the routing guide on the display back-cover and antenna assembly.

- 5 Remove the antenna cables from the routing guide on the display back-cover and antenna assembly.



- 6 Remove the eight screws (M2.5x3) that secure the hinges to the display back-cover and antenna assembly.

7 Lift the hinges from the display back-cover and antenna assembly.



# Replacing the display hinges

---

 **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](http://www.dell.com/regulatory_compliance).

## 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 eight screws (M2.5x3) that secure the display hinges to the display back-cover and antenna assembly.
- 3 Route the antenna cables through the routing guides on the display back-cover and antenna assembly.
- 4 Route the logo-board cable through the routing guides on the display back-cover and antenna assembly.
- 5 Route the display cable through the routing guides on the display back-cover and antenna assembly.
- 6 Place the hinge caps on the display hinges and press down to snap them into place.

## Post-requisites

- 1 Replace the [display panel](#).
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [system board](#).
- 5 Replace the [battery](#).
- 6 Replace the [heat-sink assembly](#).
- 7 Replace the [coin-cell battery](#).
- 8 Replace the [computer base](#).

- 9** Replace the [rear-I/O cover](#).
- 10** Replace the [memory modules](#).
- 11** Replace the [solid-state drive](#).
- 12** Replace the [wireless card](#).
- 13** Replace the [base cover](#).

# 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

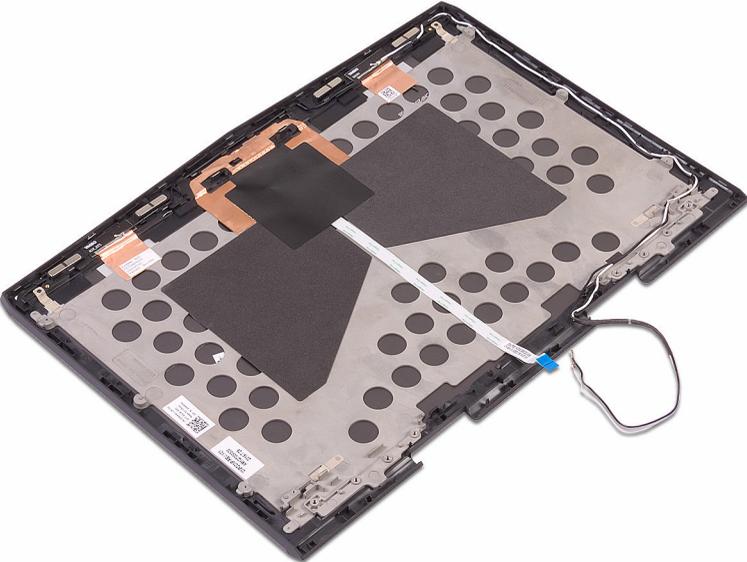


**NOTE:** These instructions are applicable only for laptops with a non-touch screen display.

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [memory modules](#).
- 5 Remove the [rear-I/O cover](#).
- 6 Remove the [computer base](#).
- 7 Remove the [coin-cell battery](#).
- 8 Remove the [heat-sink assembly](#).
- 9 Remove the [battery](#).
- 10 Remove the [system board](#).
- 11 Remove the [display assembly](#).
- 12 Remove the [display bezel](#).
- 13 Remove the [display panel](#).
- 14 Remove the [display hinges](#).
- 15 Remove the [camera cable](#).
- 16 Remove the [camera](#).

# Procedure

After performing the steps in 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](http://www.dell.com/regulatory_compliance).

## Procedure

Place the display back-cover and antenna assembly on a clean and flat surface.

## Post-requisites

- 1 Replace the [camera](#).
- 2 Replace the [camera cable](#).
- 3 Replace the [display hinges](#).
- 4 Replace the [display panel](#).
- 5 Replace the [display bezel](#).
- 6 Replace the [display assembly](#).
- 7 Replace the [system board](#).
- 8 Replace the [battery](#).
- 9 Replace the [heat-sink assembly](#).
- 10 Replace the [coin-cell battery](#).
- 11 Replace the [computer base](#).
- 12 Replace the [rear-I/O cover](#).
- 13 Replace the [memory modules](#).
- 14 Replace the [solid-state drive](#).
- 15 Replace the [wireless card](#).
- 16 Replace the [base cover](#).

# BIOS setup program

---

## 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 BIOS setup program to:

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

## Entering BIOS setup program

- 1 Turn on (or restart) your computer.
- 2 During POST, when the Alienware logo is displayed, watch for the F2 prompt to appear and then press F2 immediately.

 **NOTE:** The F2 prompt indicates that the keyboard has 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 operating system's 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. Main tab**

---

<b>Main</b>	
System Time	Enter the System Time of the computer.
System Date	Enter the System Date of the computer.
BIOS Version	Displays the BIOS version number.
Product Name	Displays the Product Name of the computer.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
CPU Type	Displays the CPU type.
CPU Speed	Displays the CPU speed.
CPU ID	Displays the CPU identification code.
CPU Cache	
L1 Cache	Displays the CPU L1 Cache size.
L2 Cache	Displays the CPU L2 Cache size.
L3 Cache	Displays the CPU L3 Cache size.
First HDD	Displays the hard drive type and capacity.
SATA ODD	Displays the optical drive type.
AC Adapter Type	Displays the power adapter type.
System Memory	Displays the system memory.
Memory Speed	Displays the memory speed.

**Table 4. Advanced tab**

---

<b>Advanced</b>	
Intel(R) SpeedStep(TM)	Enable or disable Intel Speedstep Technology. Default: Enabled.

---

## Advanced

---



**NOTE: If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.**

Virtualization	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology. Default: Enabled.
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. Default: Enabled.
Integrated NIC	Controls the on-board LAN controller.
USB Wake Support	Enable the USB devices to wake the computer from Standby. Default: Disabled.
SATA Operation	Configures operating mode of the integrated SATA hard drive controller. Default: AHCI.
Adapter Warnings	Enable adapter warnings. Default: Enabled.
Intel(R) Software Guard Extensions	Enable or disable Intel Software Guard Extensions. Default: Disabled.
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.

### USB Configuration

Rear USB Ports	Enable or disable the USB ports at the back of your computer. Default: Enabled.
----------------	--

---

**Advanced**

---

Sides USB Ports	Enable or disable the USB ports at the side of your computer. Default: Enabled.
USB debug	Enable or disable the USB debug feature. Default: Disabled.

**Power Options**

Wake Up by Integrated LAN/WLAN	If enabled, will wake the system using a network message. Default: Disabled.
AC Recovery	Select the action the computer takes when power is restored. Default: Power off.
Deep Sleep Control	Configure the Deep Sleep support mode. Default: Enable in S4 and S5.
Auto Power ON	Enables the system to power-on automatically, when AC is inserted. Default: Disabled.
Auto Power ON Mode	Set the auto power-on mode day.
Auto Power ON Date	Set the auto power-on date.
Auto Power ON Time	Set the auto power-on time.

**SupportAssist System Resolution**

Auto OS Recovery Threshold	Control the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery tool. Default: 2.
SupportAssist OS Recovery	Enable or disable the boot flow for SupportAssist OS recovery tool. Default: Disabled.

**SMART Settings**

SMART Self Test	Enable or disable SMART Self Test during system startup.
-----------------	--

---

**Advanced**

---

Default: Disabled.

**Table 5. Security tab**

---

**Security**

---

Unlock Setup Status	Displays the Unlock Setup Status.
Admin Password Status	Displays the Admin Password Status.
System Password Status	Displays the System Password Status.
HDD Password Status	Displays the HDD Password Status.
Asset Tag	Set, change, or delete the Asset Tag.
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the system password.
HDD Password	Set, change, or delete the system HDD password.
Password Change	Enable or disable changes to the System and Hard Disk passwords when an administrator password is set. Default: Permitted.
Computrace	Enable or disable the BIOS module interface of the optional Computrace Service from Absolute Software. Default: Deactivate.
Firmware TPM	Enable or disable Firmware TPM function. Default: Enabled.
UEFI Firmware Capsule Updates	Enable or disable BIOS updates through UEFI capsule update packages. Default: Enabled.

**Table 6. Boot tab**

---

**Boot**

---

Boot List Option	Displays the available boot options.
File Browser Add Boot Option	Allow the user to add additional boot device.

---

**Boot**

---

File Browser Del Boot Option	Allow the user to remove an existing boot device from the boot order.
Secure Boot	Enable or disable the secure boot feature. Default: Disabled.
Secure Boot Mode	Secure Boot mode policy selector. Default: Standard.
Legacy Option ROMs	Enable or disable the Legacy Option ROMs. Default: Disabled.

**Boot Option Priorities**

Boot Option #1	First priority boot device from the boot order. Default: Windows Boot Manager.
----------------	---

**Table 7. Exit tab**

---

**Exit**

---

Save Changes and Reset	Save the changes and exit.
Discard Changes and Reset	Discard the changes and exit.
Restore Defaults	Restore the default BIOS settings and exit.
Discard Changes	Discard the changes.
Save Changes	Save the changes.

## Boot sequence

This feature allows you to change the sequence of devices that your computer attempts to boot from. If the computer cannot boot from the device you select, it attempts to boot from the next bootable device. You can use this feature to change the:

- **Current Boot Sequence** — change the boot sequence for the current boot, for example, to boot from the optical drive to run Alienware Diagnostics from the Drivers and Utilities disc or to reinstall your operating system using an external media. The previous boot sequence is restored at the next boot.

- Future Boot Sequence — change the boot sequence for all future boots, for example, to boot from the primary hard drive.

## Boot options

 **NOTE: The following boot options are available only when the Boot List Option is set to Legacy.**

**Floppy (Diskette Drive)** — The computer attempts to boot from the floppy disk drive. If no operating system is on the drive, the computer generates an error message.

**Hard Drive** — The computer attempts to boot from the primary hard drive. If no operating system is on the drive, the computer generates an error message.

**CD/DVD/CD-RW Drive** — The computer attempts to boot from the optical drive. If no disc is in the drive, or if the disc is not bootable, the computer generates an error message.

**USB Storage Device** — Insert the memory device into a USB connector and restart the computer. When **F12 Boot Options** appear in the lower-right corner of the screen, press F12. The BIOS detects the device and adds the USB flash option to the boot menu.

 **NOTE: To boot to a USB device, the device must be bootable. To ensure that your device is bootable, check the device documentation.**

**Network** — The computer attempts to boot from the network. If no operating system is found on the network, the computer generates an error message.

## Changing boot sequence for the current boot

- 1 If you are booting from a USB device, connect the USB device to a USB port.
- 2 Turn on (or restart) your computer.
- 3 When **F2 Setup, F12 Boot Options** appear in the lower-right corner of the screen, press F12.

 **NOTE: If you wait too long and the operating system logo appears, continue to wait until you see the Microsoft Windows desktop. Then, shut down your computer and try again.**

The **Boot Options** appears, listing all available boot devices.

- 4 On the **Boot Options**, select the device you want to boot from and press Enter.  
For example, if you are booting to a USB hard drive, highlight **USB Hard Disk** and press Enter.

## Changing boot sequence for future boots

- 1 Enter BIOS setup program.  
See "[Entering BIOS setup program](#)".
- 2 Use the arrow keys to highlight the **Boot** menu option and press Enter to access the menu.  
 **NOTE: Note your current boot sequence in case you want to restore it.**
- 3 Navigate to **Set Boot Priority** to configure the boot priority.
- 4 Use the arrow keys to highlight the boot priority and press Enter to display the different devices.
- 5 Select the device and press Enter to set the boot priority.

# Flashing the BIOS

---

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

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



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

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

# Getting help and contacting Alienware

---

## Self-help resources

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

**Table 8. Getting self help resources**

<b>Information about Alienware products and services</b>	<b><a href="http://www.alienware.com">www.alienware.com</a></b>
<b>Windows 8.1 and Windows 10</b>	<b>Dell Help &amp; Support app</b> 
<b>Windows 10</b>	<b>Get started app</b> 
<b>Windows 8.1</b>	<b>Help + Tips app</b> 
<b>Accessing help in Windows 8, Windows 8.1, and Windows 10</b>	<b>In Windows search, type Help and Support, and press Enter.</b>
<b>Accessing help in Windows 7</b>	<b>Click Start → Help and Support.</b>
<b>Online help for operating system</b>	<b><a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a> <a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a></b>
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on	<b><a href="http://www.alienware.com/gamingservices">www.alienware.com/gamingservices</a></b>
Videos providing step-by-step instructions to service your computer	<b><a href="http://www.youtube.com/alienwareservices">www.youtube.com/alienwareservices</a></b>

# Contacting Alienware

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



**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.**