

# Inspiron 13 5000 Service Manual

**Computer Model:** Inspiron 5370  
**Regulatory Model:** P87G  
**Regulatory Type:** P87G001



# Notes, cautions, and warnings

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



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



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

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# Before working inside your computer

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 **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](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 #1
- Plastic scribe

## Screw list

**Table 1. Screw list**

Component	Secured to	Screw type	Quantity	Screw image
Base cover	Palm-rest and keyboard assembly	M2.5x4	7	
Battery	System board	M2x3	4	

<b>Component</b>	<b>Secured to</b>	<b>Screw type</b>	<b>Quantity</b>	<b>Screw image</b>
Display panel	Display back-cover and antenna assembly	M2x2.5	4	
Fan	System board	M2x5	2	
Hinges	Palm-rest and keyboard assembly	M2.5x4	6	
Hinge brackets	Display back-cover and antenna assembly	M2.5x2.5	6	
Hinge brackets	Display back-cover and antenna assembly	M2x2	2	
I/O board	Palm-rest and keyboard assembly	M2x2	2	
Power-button	Palm-rest and keyboard assembly	M2x3	2	
Power button with fingerprint reader (optional)	Palm-rest and keyboard assembly	M2x3	2	
Solid-state drive	System board	M2x3	1	
System board	Palm-rest and keyboard assembly	M2x2	6	
Touchpad	Palm-rest and keyboard assembly	M2x2	4	

<b>Component</b>	<b>Secured to</b>	<b>Screw type</b>	<b>Quantity</b>	<b>Screw image</b>
Touchpad (Support brackets)	Palm-rest and keyboard assembly	M2x2.5	3	
Wireless-card bracket	I/O board	M2x5	1	

# After working inside your computer

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

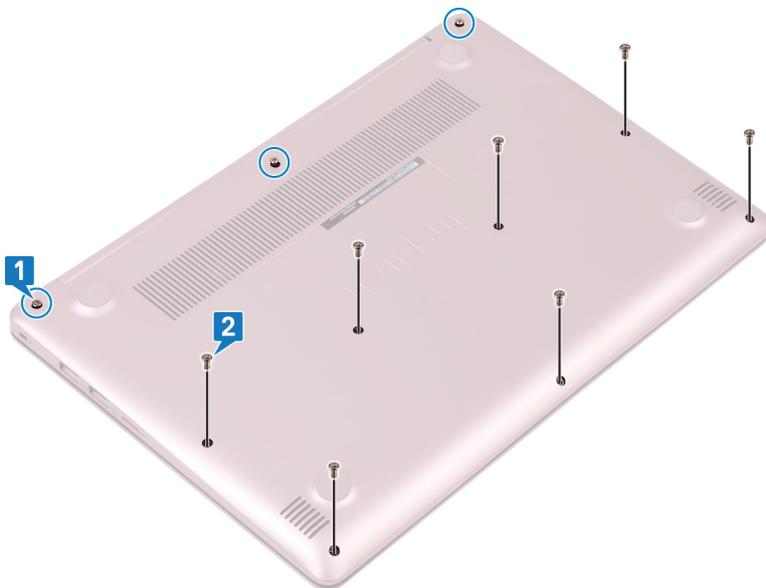
- 1** Replace all screws and ensure that no stray screws remain inside your computer.
- 2** Connect any external devices, peripherals, or cables you removed before working on your computer.
- 3** Replace any media cards, discs, or any other parts that you removed before working on your computer.
- 4** 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 three captive screws on the base cover.
- 2 Remove the seven screws (M2.5x4) that secure the base cover to the palm-rest and keyboard assembly.



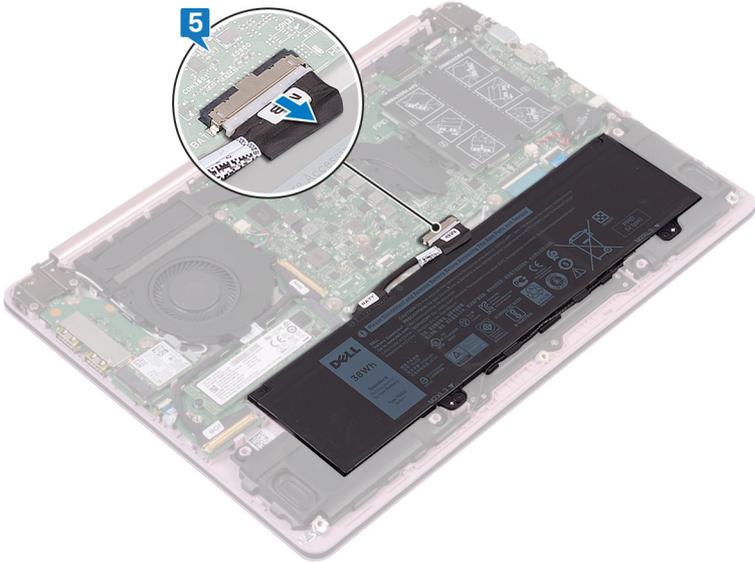
- 3 Pry the base cover starting from the top-left corner of the computer base.

- 4 Lift the base cover off the palm-rest and keyboard assembly.



 **NOTE:** The following steps are applicable only if you want to further remove any other component from your computer.

- 5 Disconnect the battery cable from the system board.



- 6 Press and hold the power button for 5 seconds to ground the computer and drain the flea power.

# Replacing the base cover

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## Procedure

- 1 Connect the battery cable to the system board, if applicable.



**CAUTION:** To avoid accidental damage to the power-adapter port, do not press the base cover against the power-adapter port when you snap the base cover to the computer base.

- 2 Place the base cover on the palm-rest and keyboard assembly, and snap the base cover into place starting from the power-adapter port.
- 3 Replace the seven screws (M2.5x4) that secure the base cover to the palm-rest and keyboard assembly.
- 4 Tighten the three captive screws that secure the base cover to the palm-rest and keyboard assembly.

# Removing the battery

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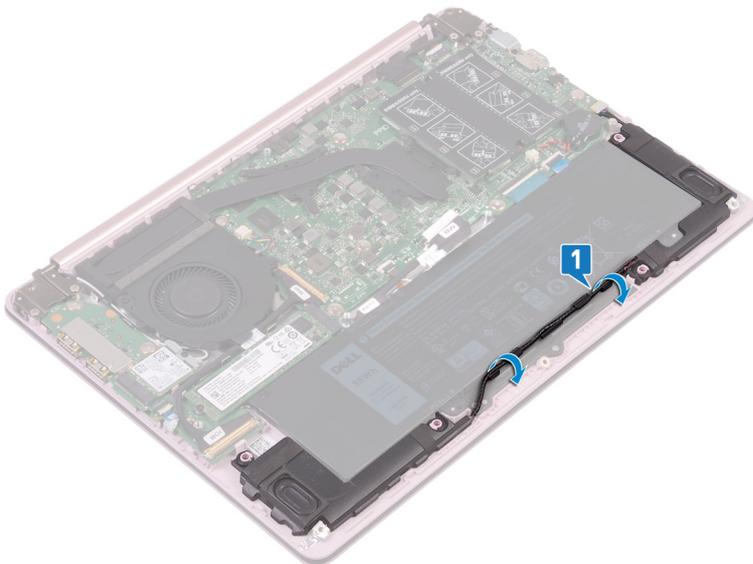
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

Remove the [base cover](#).

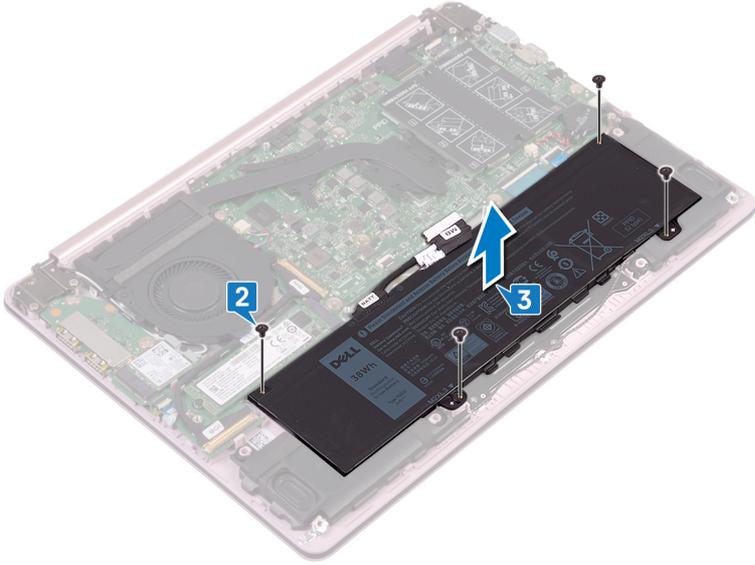
## Procedure

- 1 Remove the speaker cable from the cable routing on the battery.



- 2 Remove the four screws (M2x3) that secure the battery to the palm-rest and keyboard assembly.

- 3 Lift the battery off the palm-rest and keyboard assembly.



# Replacing the battery

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## 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 Replace the speaker cable along the cable routing on the battery.

## Post-requisites

Replace the [base cover](#).

# Removing the memory module

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## Prerequisites

Remove the [base cover](#).

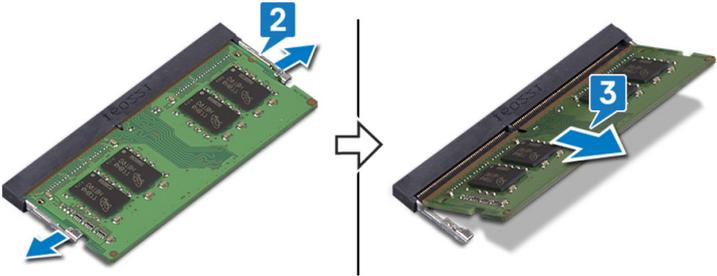
# Procedure

- 1 Locate the memory module and lift the Mylar to access the memory module.



- 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.



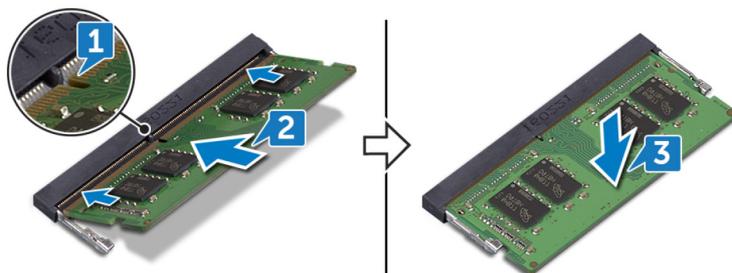
# Replacing the memory module

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

## Procedure

- 1 Lift the Mylar to access the memory-module slot.
- 2 Align the notch on the memory module with the tab on the memory-module slot.
- 3 Slide the memory module firmly into the slot at an angle.
- 4 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 wireless card

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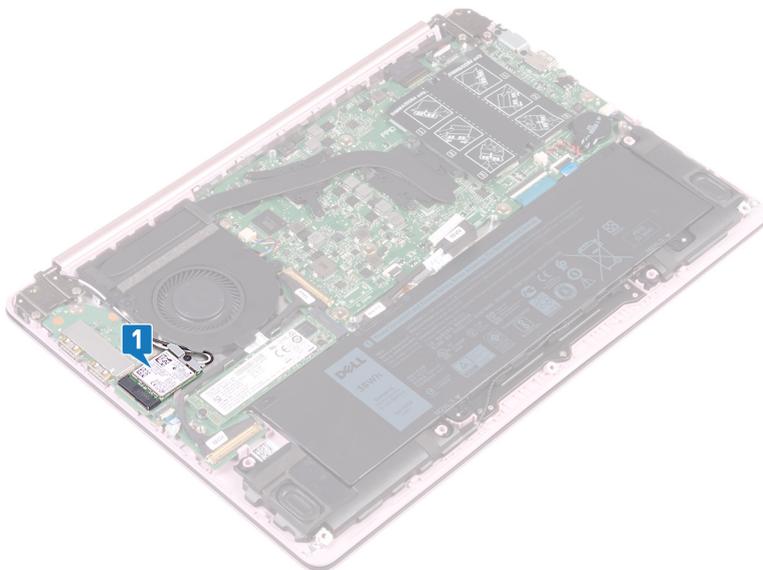
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

Remove the [base cover](#).

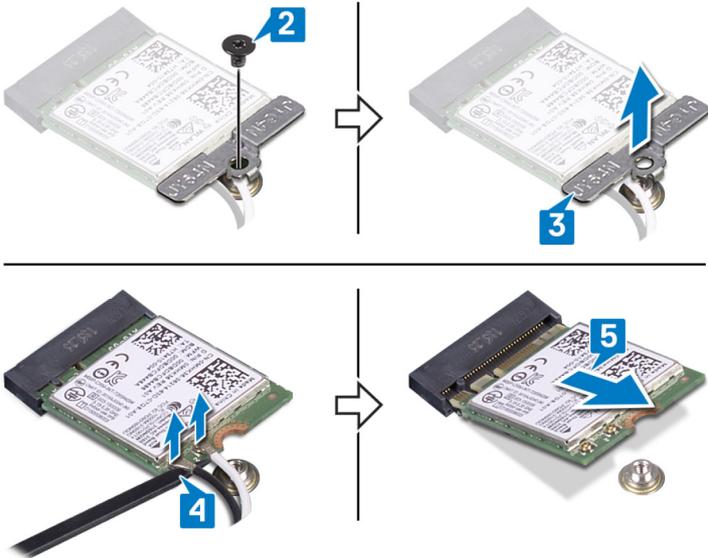
## Procedure

- 1 Locate the wireless card on your computer.



- 2 Remove the screw (M2x5) that secures the wireless-card bracket to the I/O 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 Angle and pull the wireless card to remove it from the wireless-card slot.



# Replacing the wireless card

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## Procedure



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

- 1 Connect the antenna cables to the wireless card.

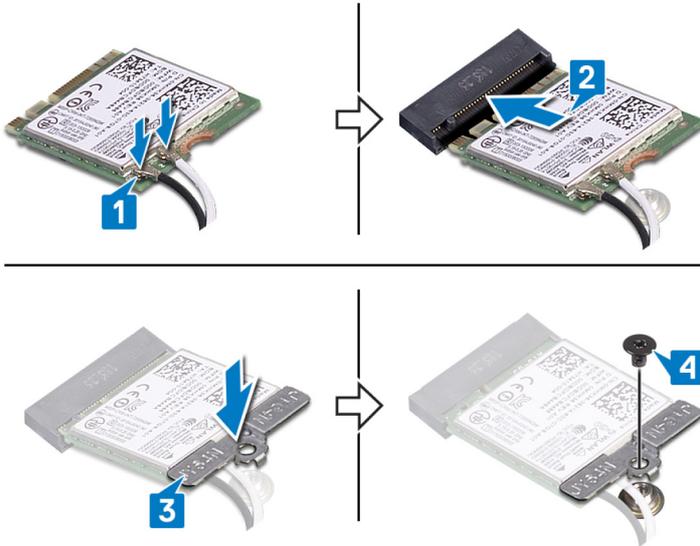
The following table provides the antenna-cable color scheme for the wireless card supported by your computer.

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

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

- 2 Align the notch on the wireless card with the tab on the wireless-card slot and insert the wireless card at an angle into the wireless-card slot.
- 3 Place the wireless card bracket on the wireless card.

- 4 Replace the screw (M2x5) that secures the wireless-card bracket to the wireless card and the I/O board.



## Post-requisites

Replace the [base cover](#).

# Removing the coin-cell battery

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

## Prerequisites

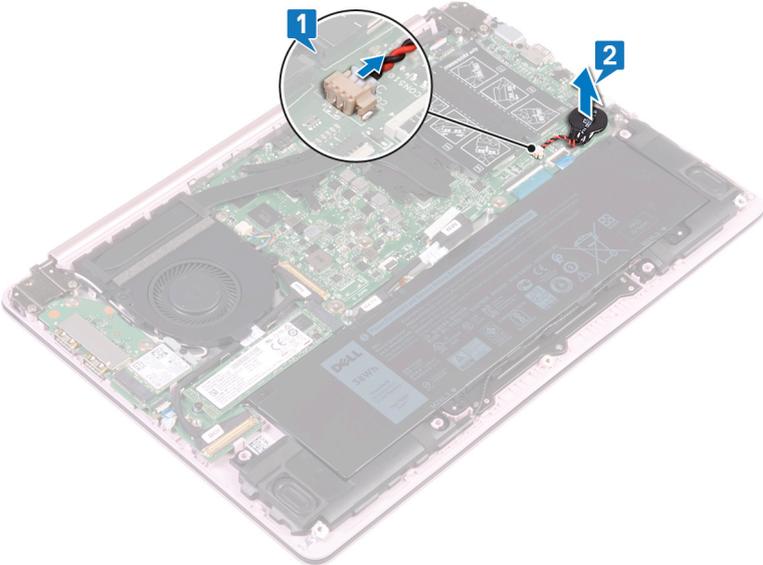
Remove the [base cover](#).

## Procedure

 **CAUTION:** Removing the coin-cell battery resets the BIOS setup program's settings to default. Before removing the coin-cell battery, it is recommended to note the BIOS setup program's settings.

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

2 Lift the coin-cell battery off from the system board.



# Replacing the coin-cell battery

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## Procedure

- 1 Adhere the coin-cell battery on the system board.
- 2 Connect the coin-cell battery cable to the system board.

## Post-requisites

Replace the [base cover](#).

# Removing the fan

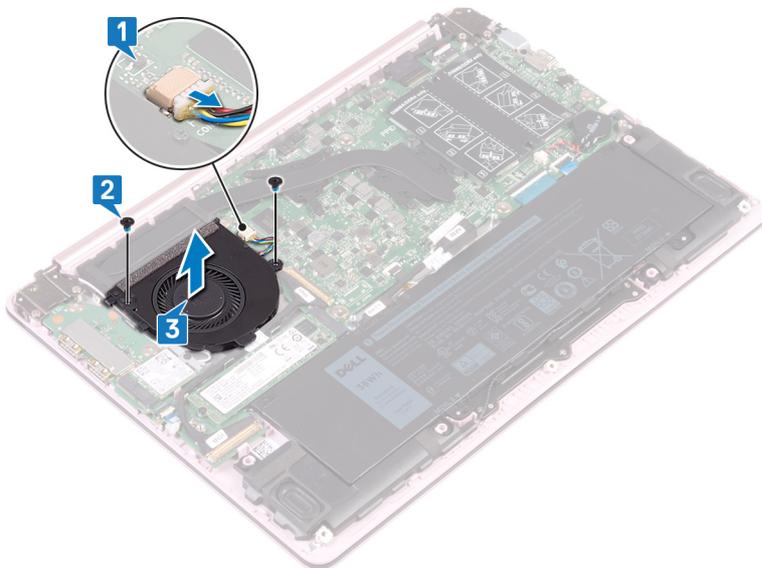
**⚠ WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

Remove the [base cover](#).

## Procedure

- 1 Disconnect the fan cable from the system board.
- 2 Remove the two screws (M2x5) that secure the fan to the keyboard bracket.
- 3 Lift the fan off the keyboard bracket.



# Replacing the fan

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## Procedure

- 1 Align the screw holes on the fan with the screw holes on the system board.
- 2 Replace the two screws (M2x5) securing the fan to the system board.
- 3 Connect the fan cable to the system board.

## Post-requisites

Replace the [base cover](#).

# Removing the solid-state drive

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

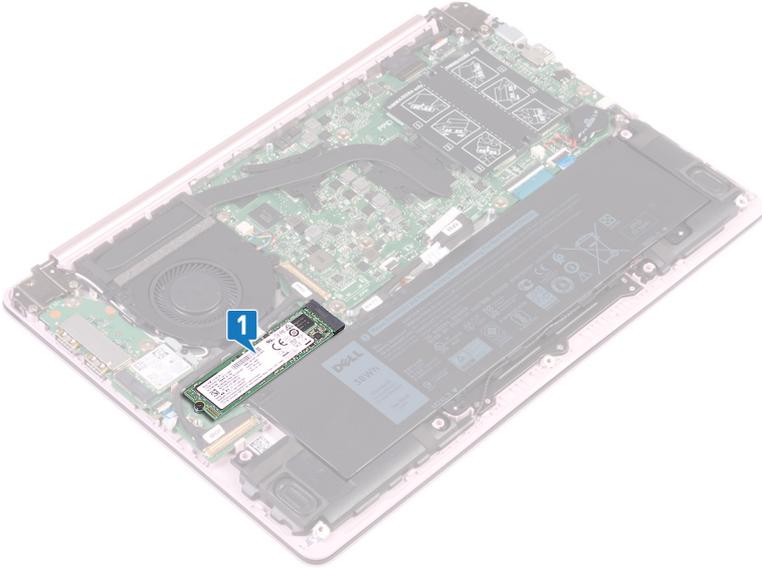
 **CAUTION:** To avoid data loss, do not remove the solid-state drive while the computer is in sleep or on state.

## Prerequisites

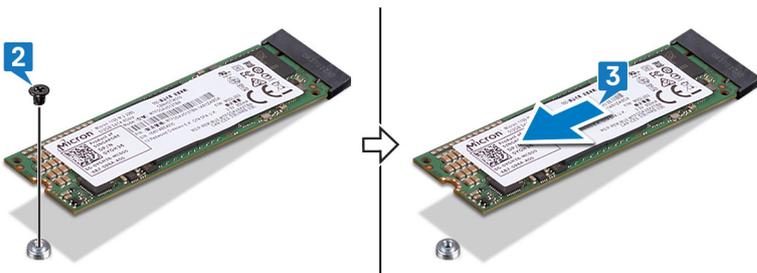
Remove the [base cover](#).

# Procedure

- 1 Locate the solid-state drive on the system board.



- 2 Remove the screw (M2x3) that secures the solid-state drive to the I/O board.
- 3 Lift and slide the solid-state drive to remove it from the solid-state drive slot on the system board.



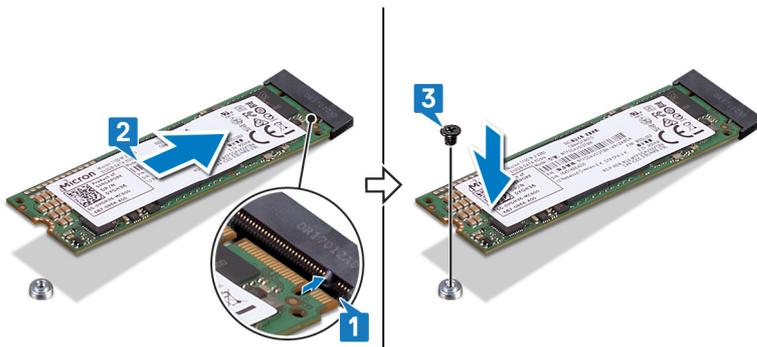
# Replacing the solid-state drive

**!** **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

- 1 Align the notch on the solid-state drive with the tab on the solid-state drive slot.
- 2 Slide the solid-state drive into the solid-state drive slot.
- 3 Replace the screw (M2x3) that secures the solid-state drive to the palm-rest and keyboard assembly.



## Post-requisites

Replace the [base cover](#).

# Removing the touchpad

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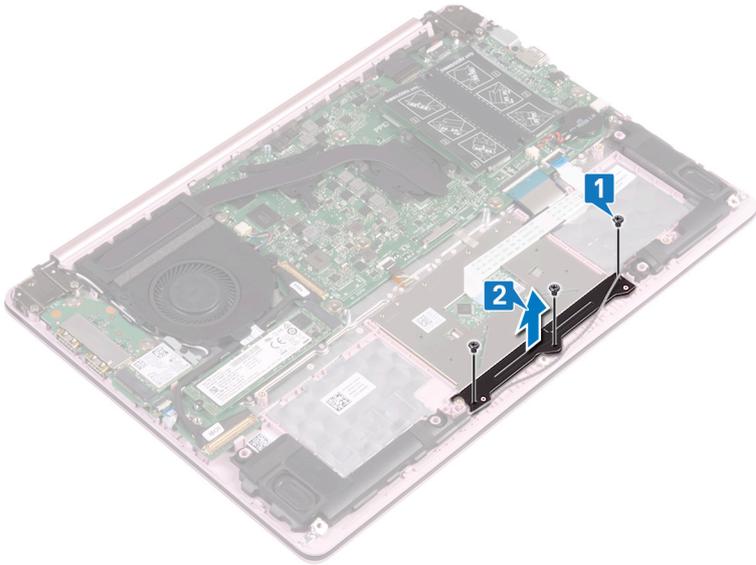
## Prerequisites

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

## Procedure

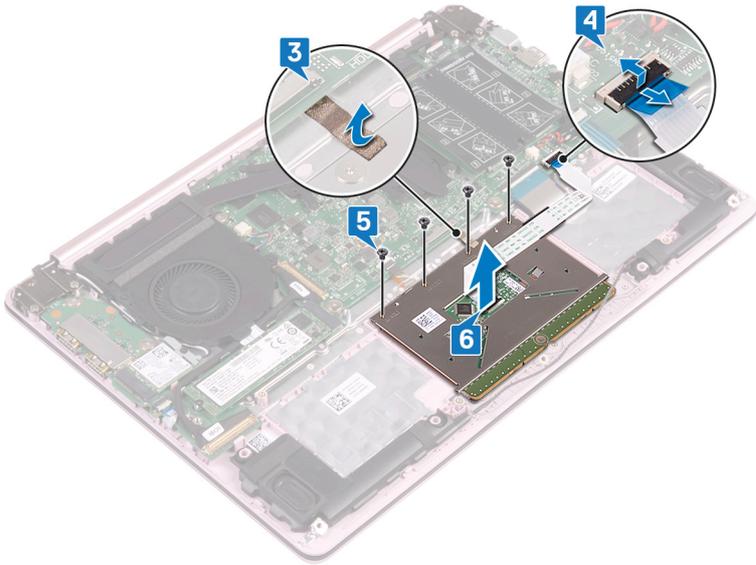
- 1 Remove the three screws (M2x2) securing the touchpad bracket to the palm-rest and keyboard assembly.

- 2 Lift the touchpad bracket off the palm-rest and keyboard assembly.



- 3 Peel off the adhesive tape that secures the touchpad to the system board.
- 4 Open the latch and disconnect the touchpad cable from the system board.
- 5 Remove the four screws (M2x2) securing the touchpad to the palm-rest and keyboard assembly.

- 6** Lift the touchpad from the slot on the palm-rest and keyboard assembly.



# Replacing the touchpad

---



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## Procedure

- 1 Slide the touchpad into the slots on the palm-rest and keyboard assembly.
- 2 Replace the four screws (M2x2) that secure the touchpad to the palm-rest and keyboard assembly.
- 3 Reconnect the touchpad cable to the system board and close the latch to secure it.
- 4 Adhere the adhesive tape that secures the touchpad to the system board.
- 5 Align the screw holes on the touchpad bracket to the screw holes on the palm-rest and keyboard assembly.
- 6 Replace the three screws (M2x2) that secure the touchpad bracket to the palm-rest and keyboard assembly.

## Post-requisites

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

# Removing the speakers

---



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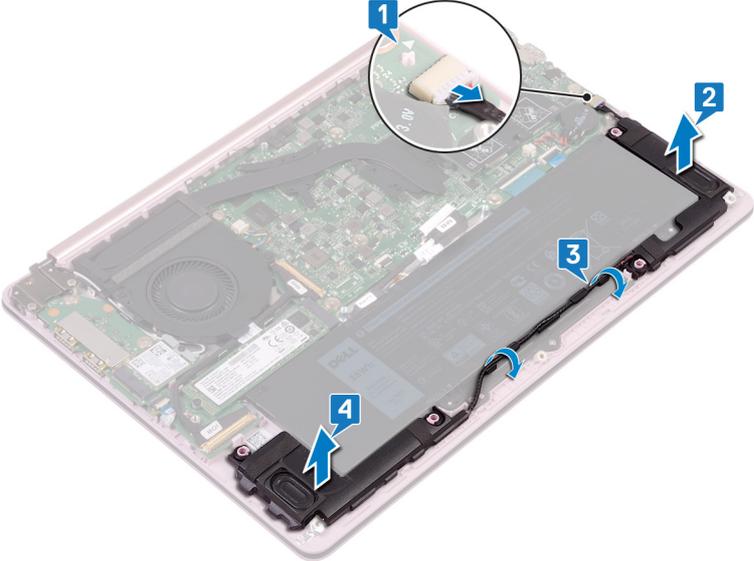
## Prerequisites

Remove the [base cover](#).

## Procedure

- 1 Disconnect the speaker cable from the system board.
- 2 Lift the left speaker off the palm-rest and keyboard assembly.
- 3 Remove the speaker cable from the routing guides on the battery.

4 Lift the right speaker off the palm-rest and keyboard assembly.



# Replacing the speakers

---



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## Procedure

- 1 Using the alignment posts, align and place the right speaker on the palm-rest and keyboard assembly.



**NOTE:** Ensure the rubber seals fit inside the grip of the alignment posts.

- 2 Route the speaker cable through the routing guides on the battery.
- 3 Using the alignment posts, align and place the left speaker on the palm-rest and keyboard assembly.



**NOTE:** Ensure the rubber seals fit inside the grip of the alignment posts.

- 4 Connect the speaker cable to the system board.

## Post-requisites

Replace the [base cover](#).

# Removing the heat sink

---

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

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

## Prerequisites

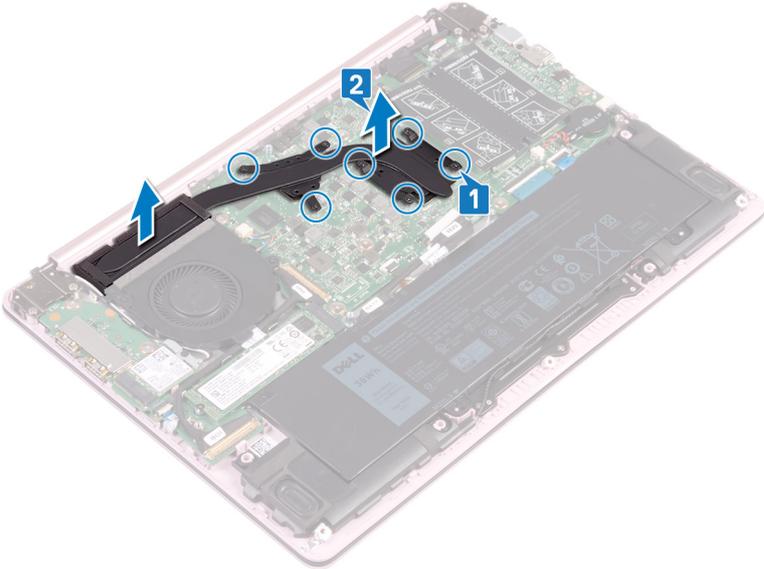
Remove the [base cover](#).

## Procedure

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

- 2 Lift the heat sink off the system board.

 **NOTE:** Depending on the configuration ordered, the type of heat sink may be different from the illustration.



# Replacing the heat sink

---

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

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

## Procedure

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

## Post-requisites

Replace the [base cover](#).

# Removing the power-adapter port

---



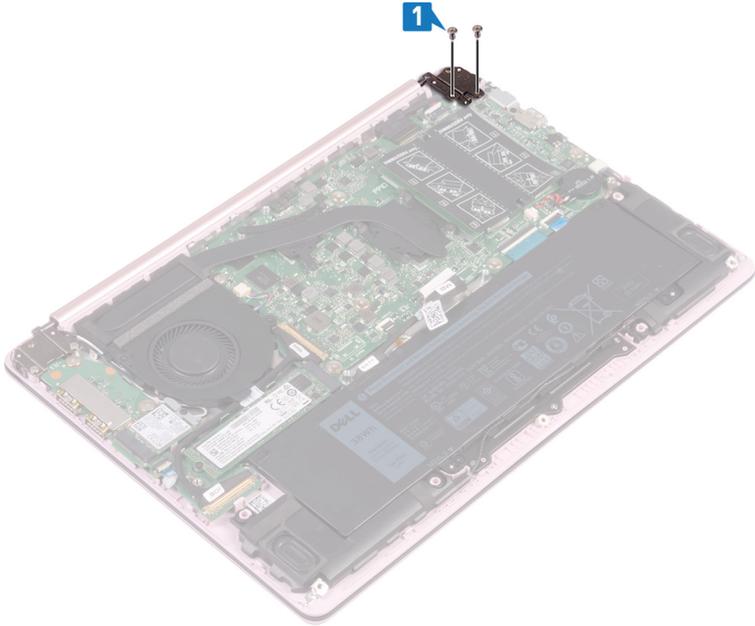
**WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

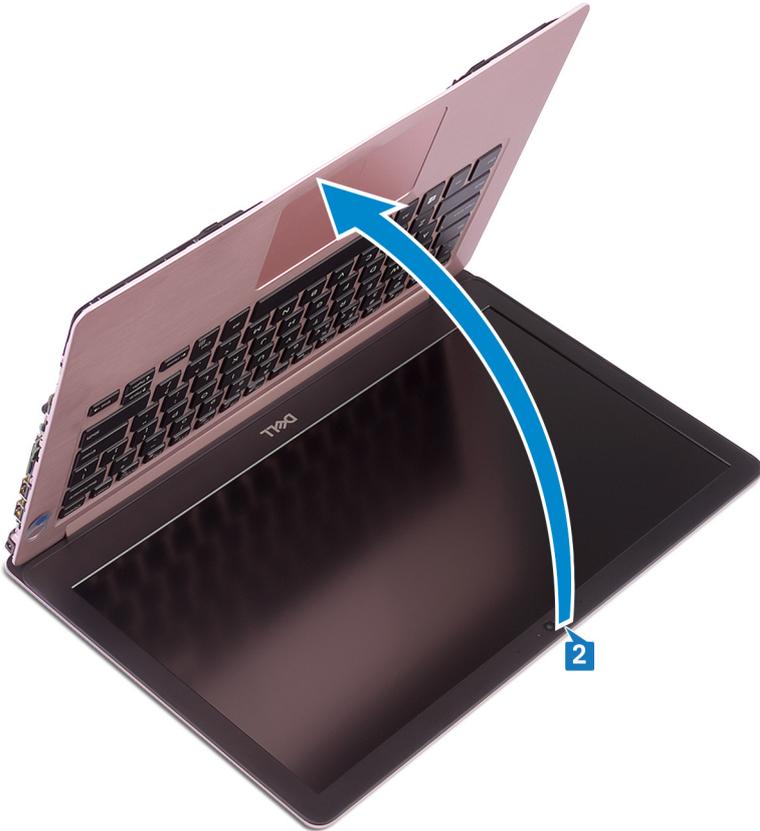
- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).

# Procedure

- 1 Remove the two screws (M2.5x4) that secure the right hinge to the system board and palm-rest and keyboard assembly.

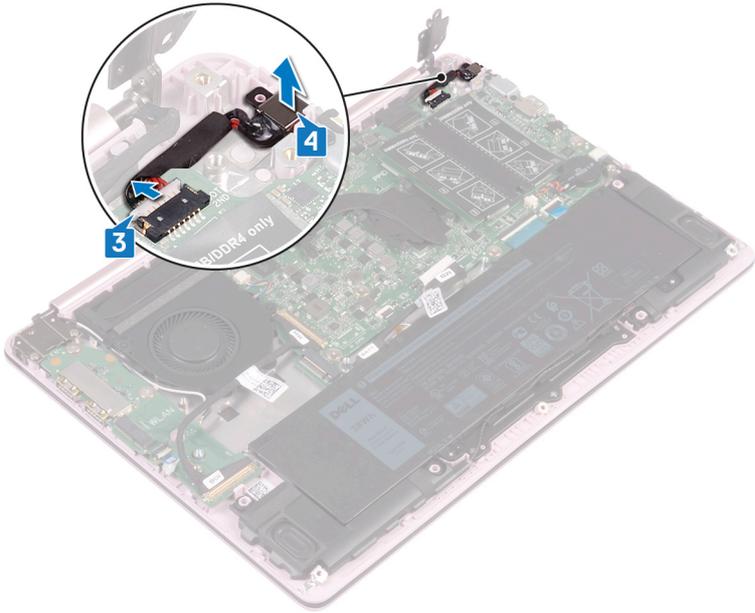


- 2 Lift the palm-rest and keyboard assembly at an angle to lift up the right hinge.



- 3 Disconnect the power-adaptor port cable from the system board.

- 4 Lift the power-adapter port, along with its cable, off the palm-rest and keyboard assembly.



# Replacing the power-adapter port

---



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## Procedure

- 1 Align the screw hole on the power-adapter port with the screw hole on the palm-rest and keyboard assembly.
- 2 Connect the power-adapter port cable to the system board.
- 3 Close the right hinge and replace the two screws (M2.5x4) that secure the right hinge to the system board and palm-rest and keyboard assembly.

## Post-requisites

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

# Removing the display assembly

---



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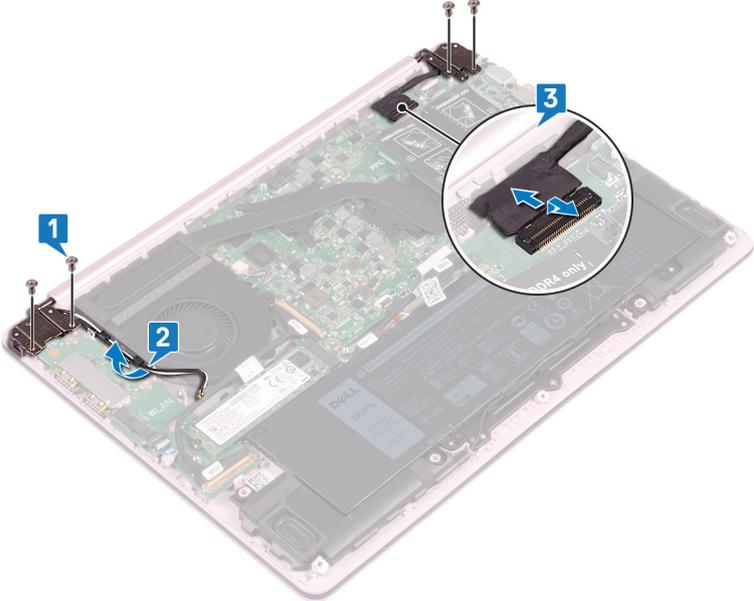
## Prerequisites

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

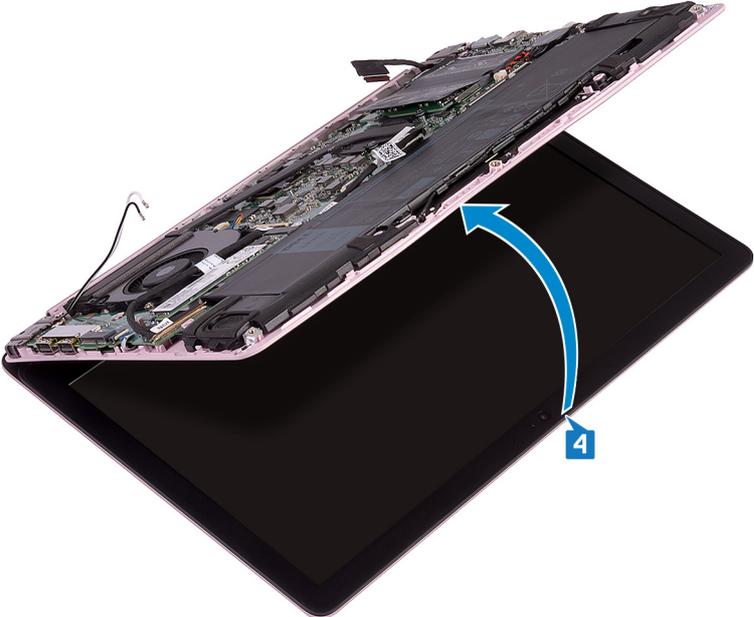
## Procedure

- 1 Remove the four screws (M2.5x4) that secure the left and right hinges to the system board and I/O board.
- 2 Note the routing of the antenna cables and remove the cables from the routing guides on the fan.

3 Disconnect the display cable from the system board.



4 Lift the palm-rest and keyboard assembly at an angle.



- 5 Slide and remove the palm-rest and keyboard assembly off the display assembly.



**6** After performing all the above steps, you are left with display assembly.



# Replacing the display assembly

---



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## Procedure



**NOTE:** Ensure that the hinges are opened to the maximum before replacing the display assembly on the palm-rest and keyboard assembly.

- 1 Place the palm-rest and keyboard assembly under the hinges on the display assembly.
- 2 Press the hinges down on the system board and I/O board.
- 3 Replace the four screws (M2.5x4) that secure the left and right hinges to the system board and I/O board, ensuring they are aligned with the screw holes on the alignment posts.
- 4 Connect the display cable to the system board.
- 5 Route the antenna cables through the routing guides on the fan.

## Post-requisites

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

# Removing the I/O board

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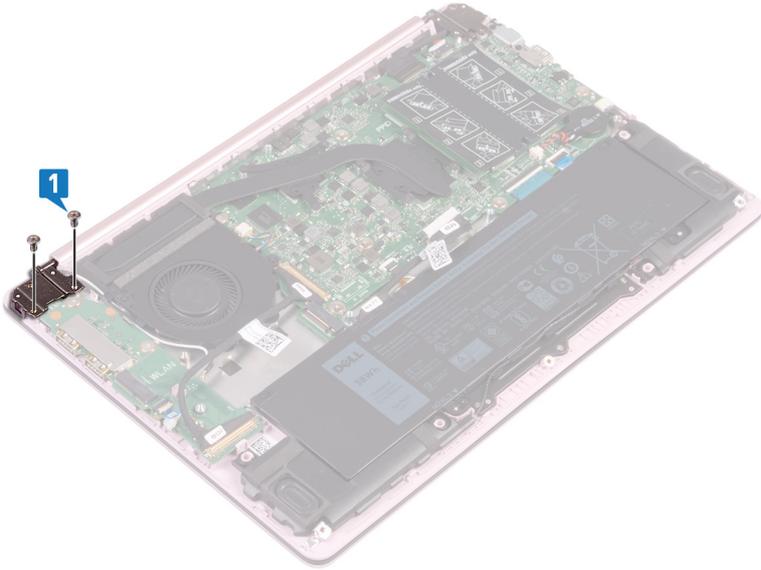
**WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

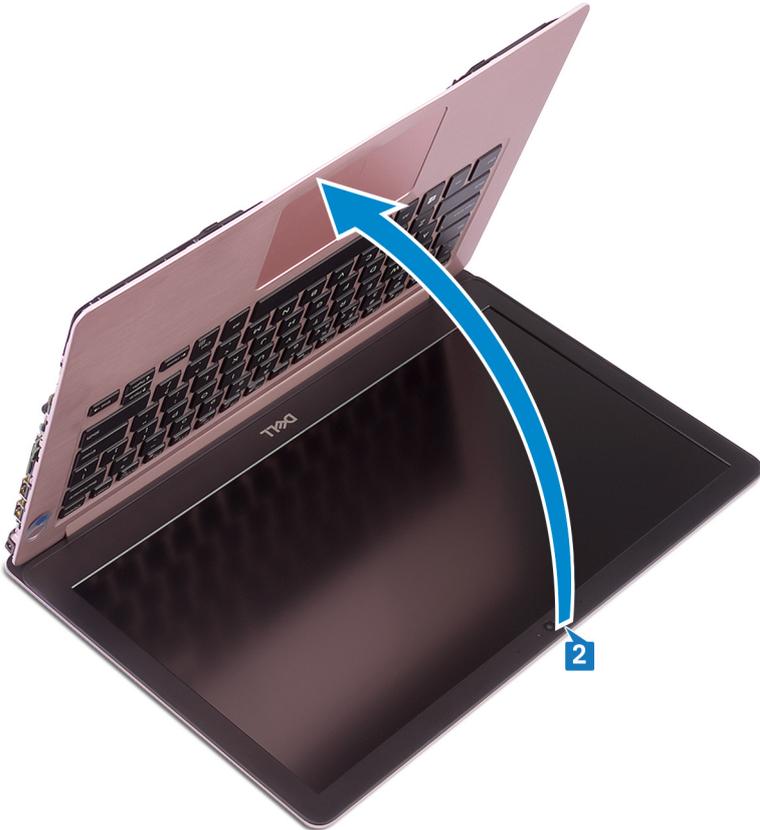
- 1 Remove the [base cover](#).
- 2 Remove the [solid-state drive](#).
- 3 Follow the procedure from step 1 to step 4 in [Removing the wireless card](#).

# Procedure

- 1 Remove the two screws (M2.5x4) that secure the left hinge to the palm-rest and keyboard assembly.

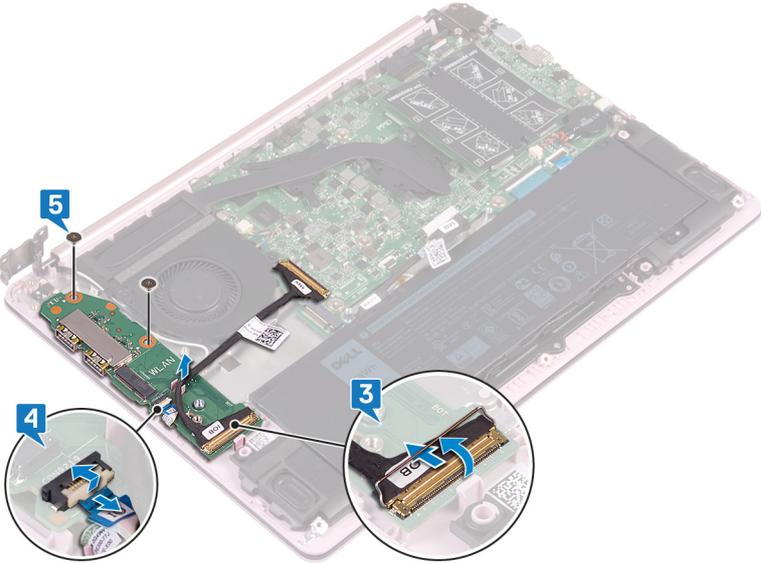


- 2 Lift the palm-rest and keyboard assembly at an angle to lift up the left hinge.



- 3 Open the latch that secures the I/O-board cable, then disconnect the cable from the I/O board.
- 4 Open the latch securing the fingerprint reader cable, then disconnect the cable from the I/O board—Optional for computers shipped with fingerprint readers.

- 5 Remove the two screws (M2x2) that secure the I/O board to the palm-rest and keyboard assembly.



# Replacing the I/O board

---



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## Procedure



**NOTE:** Ensure that the left hinge is opened to the maximum before replacing the I/O board on palm-rest and keyboard assembly.

- 1 Using the alignment posts, place the I/O board on the palm-rest and keyboard assembly.
- 2 Replace two screws (M2x2) that secure the I/O board to the palm-rest and keyboard assembly.
- 3 Open the latch for securing the fingerprint reader cable to the I/O board, then connect the cable to the I/O board—Optional for computers shipped with fingerprint readers.
- 4 Open the latch for securing the I/O-board cable to the I/O board, then connect the cable to the I/O board.
- 5 Close the left hinge down on to the palm-rest and keyboard assembly.
- 6 Replace the two screws (M2.5x4) that secure the left hinge to the palm-rest and keyboard assembly.

## Post-requisites

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

# Removing the power button

---



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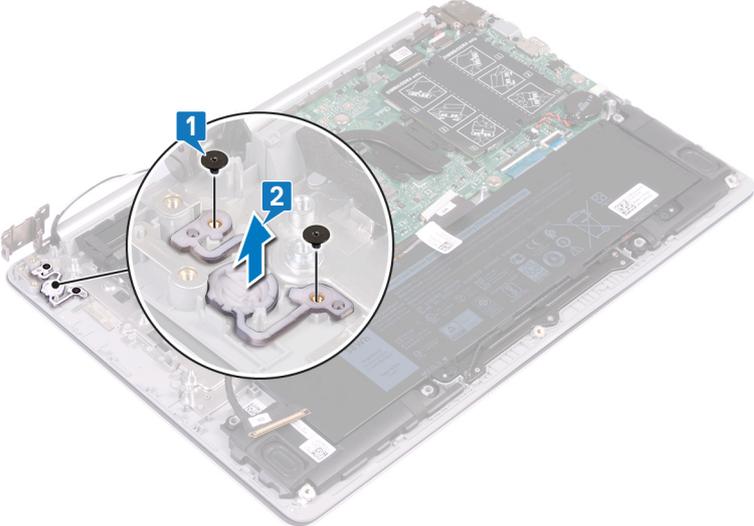
## Prerequisites

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

## Procedure

- 1 Remove the two screws (M2x3) that secure the power button to the palm-rest and keyboard assembly.

2 Lift the power button off the palm-rest and keyboard assembly.



# Replacing the power button

---



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## Procedure

- 1 Using the alignment posts, align and place the power button on the palm-rest and keyboard assembly.
- 2 Replace the screws (M2x3) that secure the power button to the palm-rest and keyboard assembly.

## Post-requisites

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

# Removing the power button with fingerprint reader

---



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**NOTE:** Applicable only for computers that are shipped with fingerprint reader.

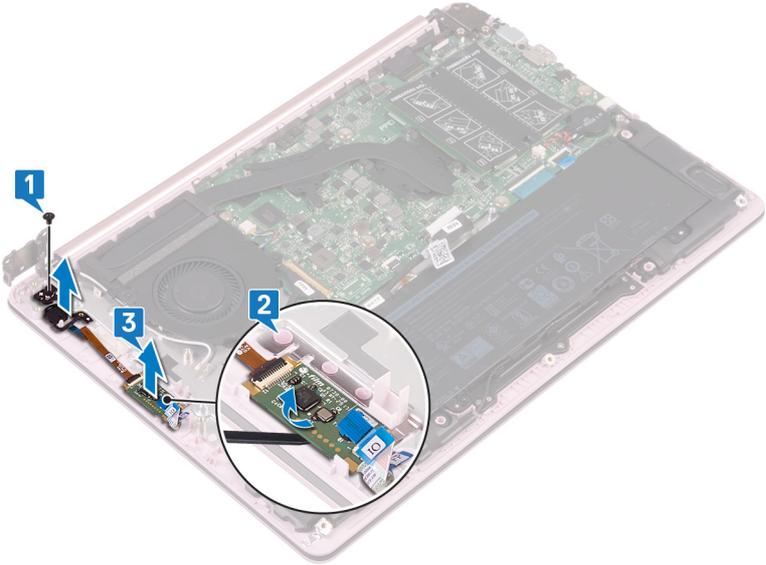
## Prerequisites

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

## Procedure

- 1 Remove the screw (M2x3) that secures the power button with fingerprint reader to the palm-rest and keyboard assembly.
- 2 Using a plastic scribe, release the fingerprint-reader board from the guides on the palm-rest and keyboard assembly.

- 3 Lift the power button with fingerprint reader, along with its cable, off the palm-rest and keyboard assembly.



# Replacing the power button with fingerprint reader

---



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**NOTE:** Applicable only for computers that are shipped with fingerprint reader.

## Procedure

- 1 Using the alignment posts, align and place the power button with fingerprint reader on the palm-rest and keyboard assembly.
- 2 Replace the screw (M2x3) that secures the power button with fingerprint reader to the palm-rest and keyboard assembly.

## Post-requisites

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

# Removing the system board

---



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



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



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

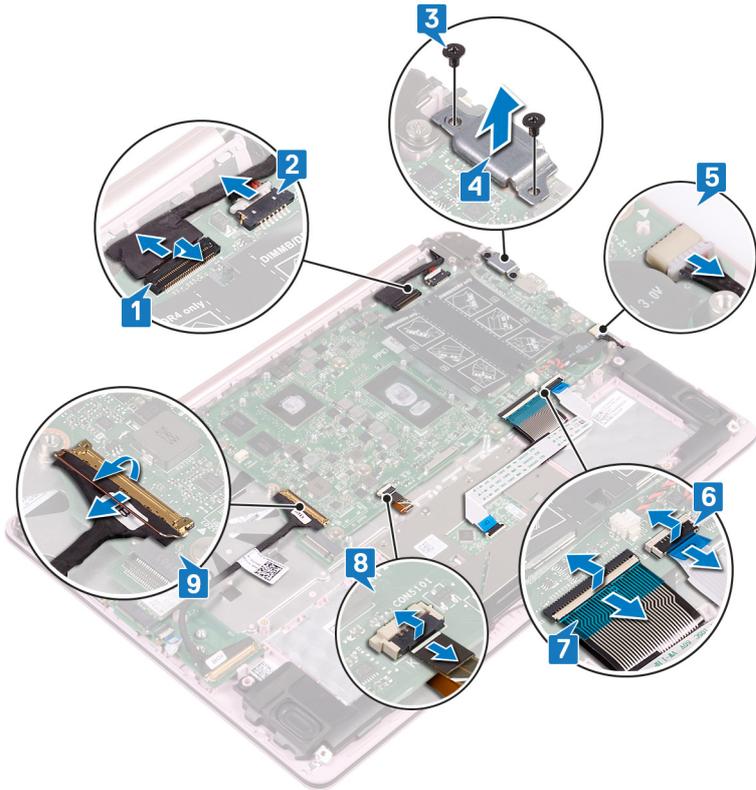
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Remove the [solid-state drive](#).
- 4 Remove the [fan](#).
- 5 Remove the [heat sink](#).
- 6 Remove the [memory module](#).

## Procedure

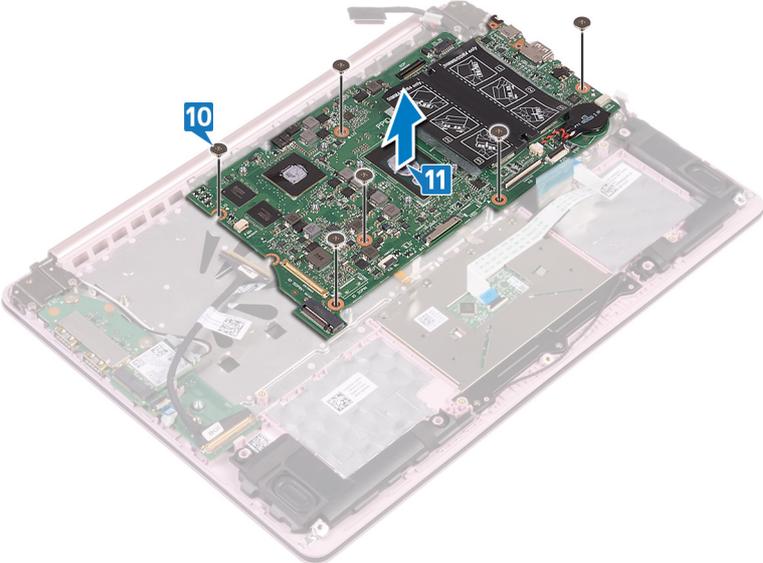
- 1 Disconnect the display cable from the system board.
- 2 Disconnect the power-adaptor port cable from the system board.
- 3 Remove the two screws (M2x5) that secure the USB Type C port bracket to the system board.
- 4 Remove the USB Type C port bracket.
- 5 Disconnect the speaker cable from the system board.

- 6 Open the latch and disconnect the touchpad cable from the system board.
- 7 Open the latch and disconnect the keyboard cable from the system board.
- 8 Open the latch and disconnect the keyboard back-light cable from the system board—Optional for computers shipped with backlit keyboards.
- 9 Open the latch and disconnect the I/O board cable from the system board.



- 10 Remove the six screws (M2x2) that secure the system board to the palm-rest and keyboard assembly.

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



# Replacing the system board

---



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



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

## Procedure

- 1 Align the screw holes on the system board with the screw holes on the palm-rest and keyboard assembly.
- 2 Replace the six screws (M2x2) that secure the system board to the palm-rest and keyboard assembly.
- 3 Slide the I/O-board cable into its respective connector on the system board and close the latch.
- 4 Slide the keyboard back-light cable into its respective connector on the system board and close the latch—Optional for computers shipped with backlit keyboards.
- 5 Slide the keyboard cable into its respective connector on the system board and close the latch.
- 6 Slide the touchpad cable into its respective connector on the system board and close the latch.
- 7 Connect the speaker cable from the system board.
- 8 Align the screw holes of the USB Type C bracket with the screw holes on the system board and palm-rest and keyboard assembly.
- 9 Replace the two screws (M2x5) that secure the USB Type C port bracket to the system board.
- 10 Connect the power-adaptor port cable to the system board.

- 11 Connect the display cable to the system board.

## Post-requisites

- 1 Replace the [memory module](#).
- 2 Replace the [heat sink](#).
- 3 Replace the [fan](#).
- 4 Replace the [solid-state drive](#).
- 5 Replace the [battery](#).
- 6 Replace the [base cover](#).

## Entering the Service Tag in the BIOS setup program

- 1 Turn on or restart your computer.
- 2 Press F2 when the Dell logo is displayed to enter the BIOS setup program.
- 3 Navigate to the **Main** tab and enter the Service Tag in the **Service Tag Input** field.



**NOTE: Service tag is the alphanumeric identifier located at the back side of your computer.**

# Removing the palm-rest and keyboard assembly

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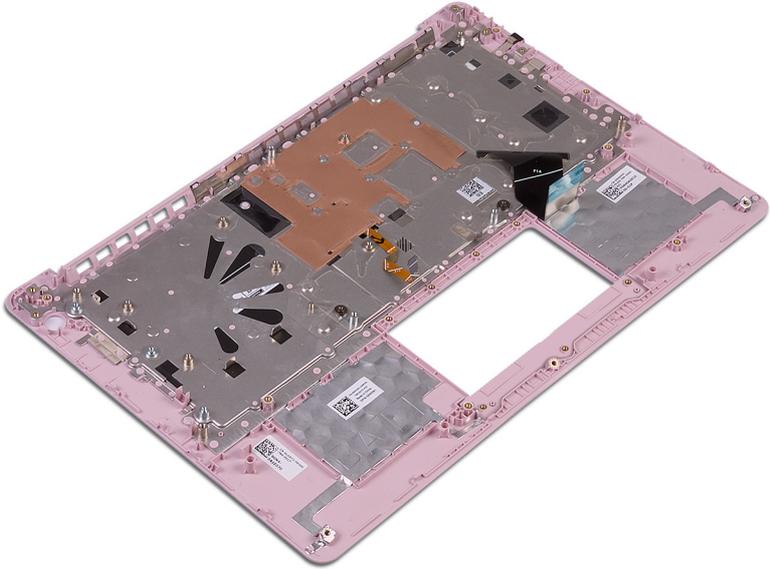
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## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [battery](#).
- 3 Remove the [speakers](#).
- 4 Remove the [solid-state drive](#).
- 5 Remove the [wireless card](#).
- 6 Remove the [I/O board](#).
- 7 Remove the [power button](#) or [power button with fingerprint reader](#) (if installed).
- 8 Remove the [fan](#).
- 9 Remove the [heat sink](#).
- 10 Remove the [coin-cell battery](#).
- 11 Remove the [display assembly](#).
- 12 Remove the [system board](#).
- 13 Remove the [touchpad](#).

## Procedure

After performing the above steps, we are left with the palm-rest and keyboard assembly.



# Replacing the palm-rest and keyboard assembly

---



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## Procedure

Place the palm-rest and keyboard assembly on a flat surface.

## Post-requisites

- 1 Replace the [touchpad](#).
- 2 Replace the [system board](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [heat sink](#).
- 6 Replace the [fan](#).
- 7 Replace the [power button](#) or [power button with fingerprint reader](#)(if installed).
- 8 Replace the [I/O board](#).
- 9 Replace the [wireless card](#).
- 10 Replace the [solid-state drive](#).
- 11 Replace the [battery](#).
- 12 Replace the [speakers](#).
- 13 Replace the [base cover](#).

# Removing the display bezel

---



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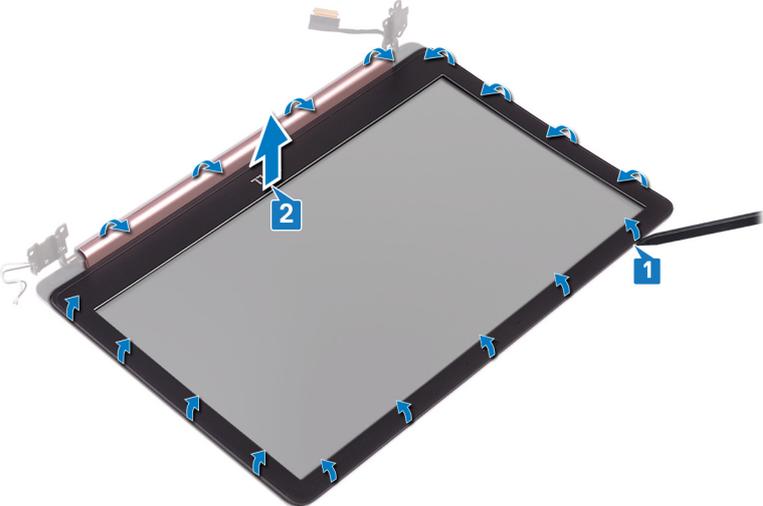
## Prerequisites

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

## Procedure

- 1 Using a plastic scribe, carefully pry the display bezel from the top-left, outer edge of the display back-cover and antenna assembly.

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



# Replacing the display bezel

---



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## Procedure

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

## Post-requisites

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

# Removing the camera

---



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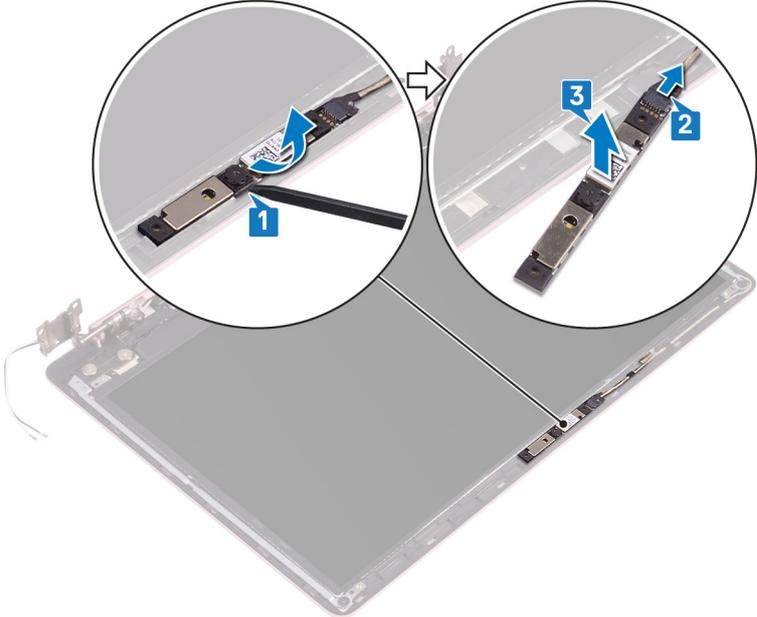
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [display assembly](#).
- 4 Remove the [display bezel](#).
- 5 Remove the [display panel](#).

## Procedure

- 1 Using a plastic scribe, gently pry the camera off the display back-cover and antenna assembly.
- 2 Disconnect the camera cable from the camera module.

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



# Replacing the camera

---



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## Procedure

- 1 Connect the camera cable to the camera module.
- 2 Using the alignment post adhere the camera module on the display back-cover and antenna assembly.

## Post-requisites

- 1 Replace the [display panel](#).
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).

# Removing the display panel

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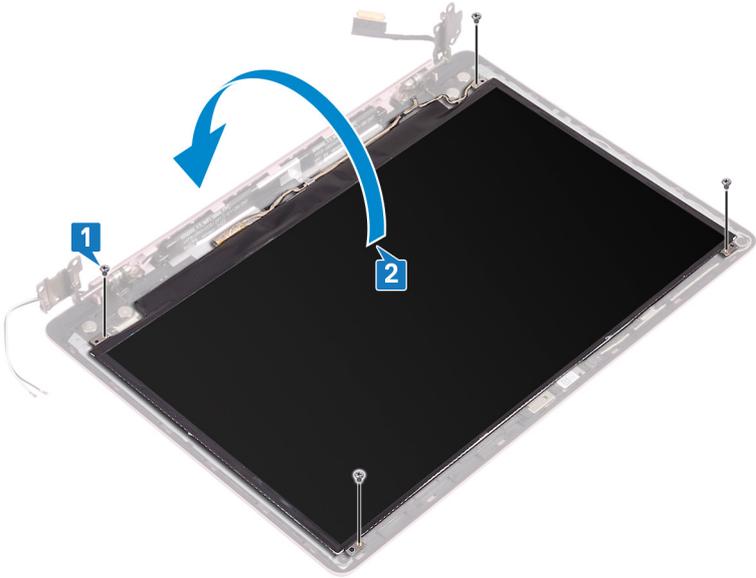
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [display assembly](#).
- 4 Remove the [display bezel](#).

## Procedure

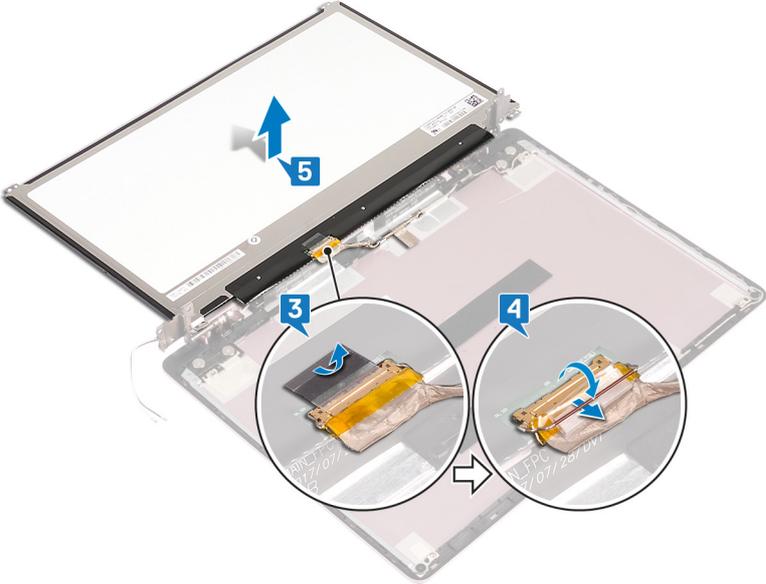
- 1 Remove the four screws (M2x2.5) that secure the display panel to the display back-cover and antenna assembly.

- 2 Lift the display panel and turn it over.



- 3 Peel the tape adhering the display cable to the back of the display panel.
- 4 Lift the latch and disconnect the display cable from the display-panel cable connector.

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



# Replacing the display panel

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## Procedure

- 1 Place the display panel on a flat and clean surface.
- 2 Connect the display cable to the connector at the back of the display panel and close the latch to secure the cable.
- 3 Adhere the tape that secures the display cable to the back of 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 (M2 x2.5) that secure the display panel to the display back-cover and antenna assembly.

## Post-requisites

- 1 Replace the [display bezel](#).
- 2 Replace the [display assembly](#).
- 3 Replace the [wireless card](#).
- 4 Replace the [base cover](#).

# Removing the display hinges

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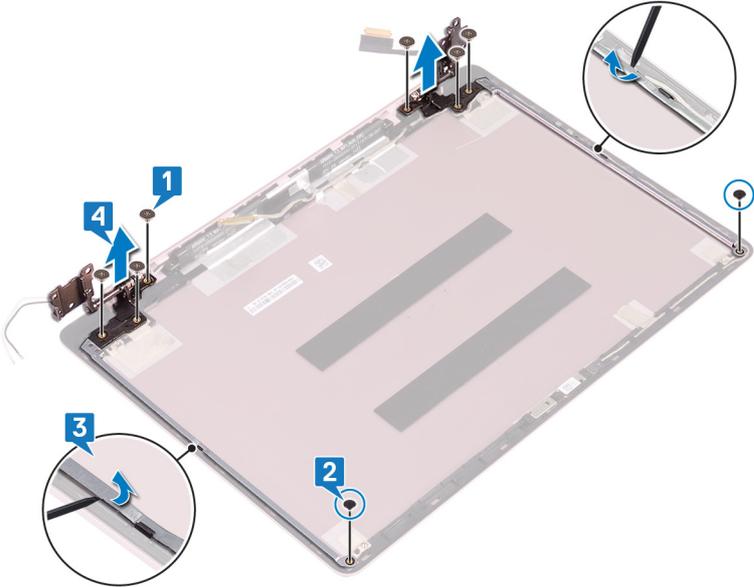
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [display assembly](#).
- 4 Remove the [display bezel](#).
- 5 Remove the [display panel](#).

## Procedure

- 1 Remove the six screws (M2.5x2.5) that secure the hinges to the display back-cover and antenna assembly.
- 2 Remove the two screws (M2x2) that secure the hinge brackets to the display back-cover and antenna assembly.
- 3 Using a plastic scribe, pry the brackets away from the guides on the display back-cover and antenna assembly.

4 Lift the hinges and brackets off the display back-cover and antenna assembly.



# Replacing the display hinges

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## Procedure

- 1 Align the screw holes on the hinges and brackets with the screw holes on the display back-cover and antenna assembly.
- 2 Replace the two screws (M2x2) that secure the hinges to the display back-cover and antenna assembly.
- 3 Replace the six screws (M2.5x2.5) that secure the hinges to the display back-cover and antenna assembly .

## Post-requisites

- 1 Replace the [display panel](#).
- 2 Replace the [display bezel](#).
- 3 Replace the [display assembly](#).
- 4 Replace the [wireless card](#).
- 5 Replace the [base cover](#).

# Removing the display cable

---



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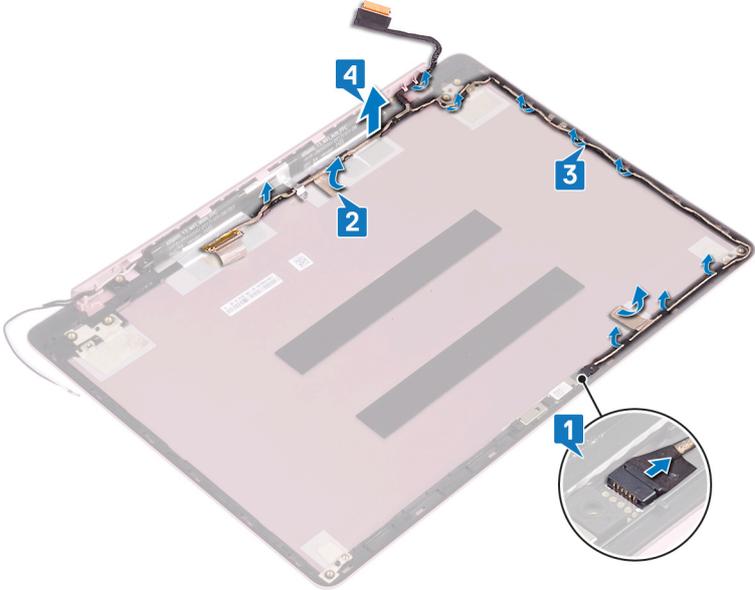
## Prerequisites

- 1 Remove the [base cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [display assembly](#).
- 4 Remove the [display bezel](#).
- 5 Remove the [display panel](#).
- 6 Remove the [display hinges](#).

## Procedure

- 1 Disconnect the camera cable from the camera module.
- 2 Peel off the adhesive tape that secures the camera cable to the display back-cover and antenna assembly.
- 3 Note the display cable routing and remove the cable from the routing guides on the display back-cover and antenna assembly.

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



# Replacing the display cable

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## Procedure

- 1 Route the display cable through the routing guides on the display back-cover and antenna assembly.
- 2 Adhere the adhesive tape that secures the camera cable to the display back-cover and antenna assembly.
- 3 Slide the camera cable into the connector on the camera module to secure the cable.

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

# Removing the display back-cover and antenna assembly

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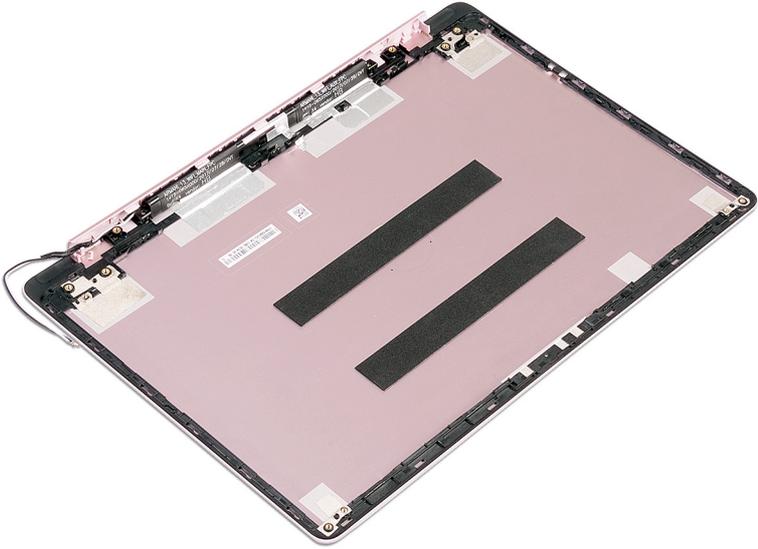
**WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best 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 [display assembly](#).
- 4 Remove the [display bezel](#).
- 5 Remove the [camera](#).
- 6 Remove the [display panel](#).
- 7 Remove the [display hinges](#).

## Procedure

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



# Replacing the display back-cover and antenna assembly

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## Procedure

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

## Post-requisites

- 1 Replace the [display cable](#).
- 2 Replace the [display hinges](#).
- 3 Replace the [display panel](#).
- 4 Replace the [camera](#).
- 5 Replace the [display bezel](#).
- 6 Replace the [display assembly](#).
- 7 Replace the [wireless card](#).
- 8 Replace the [base cover](#).

# Downloading drivers

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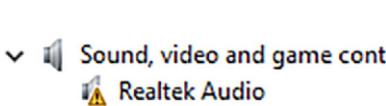
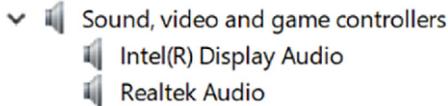
## Downloading the audio driver

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

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

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

**Table 3. Audio controller in device manager**

Before driver installation	After driver installation
 <p>Device Manager view showing 'Sound, video and game controllers' expanded. Underneath, 'Realtek Audio' is listed with a yellow warning triangle icon next to it.</p>	 <p>Device Manager view showing 'Sound, video and game controllers' expanded. Underneath, 'Intel(R) Display Audio' and 'Realtek Audio' are listed, both with speaker icons and no warning triangles.</p>

## Downloading the graphics driver

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

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

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

**Table 4. Display adapter in device manager**

Before driver installation	After driver installation
<ul style="list-style-type: none"> <li>  Display adapters           <ul style="list-style-type: none"> <li>  AMD Radeon(TM) Vega 8 Mobile Graphics               <ul style="list-style-type: none"> <li>  Video Controller                   </li> </ul> </li> </ul> </li> <li>  Display adapters           <ul style="list-style-type: none"> <li>  RadeonT R7 M565 Graphics               <ul style="list-style-type: none"> <li>  </li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>  Display adapters           <ul style="list-style-type: none"> <li>  AMD Radeon(TM) Vega 8 Mobile Graphics               <ul style="list-style-type: none"> <li>  Radeon(TM) 530 Graphics                   </li> </ul> </li> </ul> </li> <li>  Display adapters           <ul style="list-style-type: none"> <li>  AMD Radeon(TM) Vega 10 Mobile Graphics               <ul style="list-style-type: none"> <li>  RadeonT R7 M565 Graphics                   </li> </ul> </li> </ul> </li> </ul>

## Downloading the USB 3.0 driver

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



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

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

**Table 5. Identifying USB 3.0 driver in device manager**

Before driver installation	After driver installation
<ul style="list-style-type: none"> <li>  Universal Serial Bus controllers           <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> UCSI USB Connector Manager</li> <li> USB Composite Device</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> <li>  Universal Serial Bus controllers           <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> Realtek USB 2.0 Card Reader</li> <li> USB Mass Storage Device</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>  Universal Serial Bus controllers           <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> Realtek USB 2.0 Card Reader</li> <li> UCSI USB Connector Manager</li> <li> USB Composite Device</li> <li> USB Composite Device</li> <li> USB Root Hub (USB 3.0)</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> <li>  Universal Serial Bus controllers           <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> Realtek USB 2.0 Card Reader</li> <li> USB Composite Device</li> <li> USB Mass Storage Device</li> <li> USB Root Hub (USB 3.0)</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> </ul>

## Downloading the Wi-Fi driver

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



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

- 4 Click **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page, and expand **Network**.
- 6 Click **Download** to download the Wi-Fi driver for your computer.
- 7 After the download is complete, navigate to the folder where you saved the Wi-Fi driver file.

- Double-click the driver file icon and follow the on-screen instructions to install the driver.

**Table 6. Identifying Wi-Fi driver in device manager**

Before driver installation	After driver installation
<ul style="list-style-type: none"> <li>Network adapters           <ul style="list-style-type: none"> <li>Bluetooth Device (Personal Area Network) #2</li> <li>Bluetooth Device (RFCOMM Protocol TDI) #2</li> <li>Realtek PCIe FE Family Controller #2</li> <li>WAN Miniport (IKEv2)</li> <li>WAN Miniport (IP)</li> <li>WAN Miniport (IPv6)</li> <li>WAN Miniport (L2TP)</li> <li>WAN Miniport (Network Monitor)</li> <li>WAN Miniport (PPPOE)</li> <li>WAN Miniport (PPTP)</li> <li>WAN Miniport (SSTP)</li> </ul> </li> <li>Network adapters           <ul style="list-style-type: none"> <li>Bluetooth Device (RFCOMM Protocol TDI)</li> <li>Intel(R) Dual Band Wireless-AC 3165</li> <li>Realtek PCIe FE Family Controller</li> <li>WAN Miniport (IKEv2)</li> <li>WAN Miniport (IP)</li> <li>WAN Miniport (IPv6)</li> <li>WAN Miniport (L2TP)</li> <li>WAN Miniport (Network Monitor)</li> <li>WAN Miniport (PPPOE)</li> <li>WAN Miniport (PPTP)</li> <li>WAN Miniport (SSTP)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Network adapters           <ul style="list-style-type: none"> <li>Bluetooth Device (Personal Area Network)</li> <li>Bluetooth Device (RFCOMM Protocol TDI)</li> <li>Qualcomm QCA9377 802.11ac Wireless Adapter</li> <li>Realtek PCIe FE Family Controller #2</li> <li>WAN Miniport (IKEv2)</li> <li>WAN Miniport (IP)</li> <li>WAN Miniport (IPv6)</li> <li>WAN Miniport (L2TP)</li> <li>WAN Miniport (Network Monitor)</li> <li>WAN Miniport (PPPOE)</li> <li>WAN Miniport (PPTP)</li> <li>WAN Miniport (SSTP)</li> </ul> </li> <li>Network adapters           <ul style="list-style-type: none"> <li>Bluetooth Device (Personal Area Network)</li> <li>Bluetooth Device (RFCOMM Protocol TDI)</li> <li>Intel(R) Dual Band Wireless-AC 3165</li> <li>Realtek PCIe FE Family Controller</li> <li>WAN Miniport (IKEv2)</li> <li>WAN Miniport (IP)</li> <li>WAN Miniport (IPv6)</li> <li>WAN Miniport (L2TP)</li> <li>WAN Miniport (Network Monitor)</li> <li>WAN Miniport (PPPOE)</li> <li>WAN Miniport (PPTP)</li> <li>WAN Miniport (SSTP)</li> </ul> </li> </ul>

## Downloading the media-card reader driver

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

- Click **Drivers & downloads** → **Find it myself**.
- Scroll down the page, and expand **Chipset**.
- 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.

**Table 7. Identifying media-card reader driver in device manager**

Before driver installation	After driver installation
<ul style="list-style-type: none"> <li>▼  Universal Serial Bus controllers               <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> UCSI USB Connector Manager</li> <li> USB Composite Device</li> <li> USB Composite Device</li> <li> USB Root Hub (USB 3.0)</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> <li>▼  Universal Serial Bus controllers               <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> Realtek USB 2.0 Card Reader</li> <li> USB Mass Storage Device</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▼  Universal Serial Bus controllers               <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> Realtek USB 2.0 Card Reader</li> <li> USB Composite Device</li> <li> USB Mass Storage Device</li> <li> USB Root Hub (USB 3.0)</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> <li>▼  Universal Serial Bus controllers               <ul style="list-style-type: none"> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> AMD USB 3.10 eXtensible Host Controller - 1.10 (Microsoft)</li> <li> Generic USB Hub</li> <li> Realtek USB 2.0 Card Reader</li> <li> UCSI USB Connector Manager</li> <li> USB Composite Device</li> <li> USB Composite Device</li> <li> USB Root Hub (USB 3.0)</li> <li> USB Root Hub (USB 3.0)</li> </ul> </li> </ul>

## Downloading the chipset driver

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



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

- 4 Click **Drivers & downloads** → **Find it myself**.
- 5 Scroll down the page and expand **Chipset**.
- 6 Click **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 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](http://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.

**Table 8. Identifying network driver in device manager**

Before driver installation	After driver installation
<ul style="list-style-type: none"><li>Network adapters<ul style="list-style-type: none"><li>Bluetooth Device (Personal Area Network) #2</li><li>Bluetooth Device (RFCOMM Protocol TDI) #2</li><li>Realtek PCIe FE Family Controller #2</li><li>WAN Miniport (IKEv2)</li><li>WAN Miniport (IP)</li><li>WAN Miniport (IPv6)</li><li>WAN Miniport (L2TP)</li><li>WAN Miniport (Network Monitor)</li><li>WAN Miniport (PPPOE)</li><li>WAN Miniport (PPTP)</li><li>WAN Miniport (SSTP)</li></ul></li><li>Network adapters<ul style="list-style-type: none"><li>Bluetooth Device (Personal Area Network)</li><li>Bluetooth Device (RFCOMM Protocol TDI)</li><li>Intel(R) Dual Band Wireless-AC 7265</li><li>Realtek PCIe FE Family Controller #2</li><li>WAN Miniport (IKEv2)</li><li>WAN Miniport (IP)</li><li>WAN Miniport (IPv6)</li><li>WAN Miniport (L2TP)</li><li>WAN Miniport (Network Monitor)</li><li>WAN Miniport (PPPOE)</li><li>WAN Miniport (PPTP)</li><li>WAN Miniport (SSTP)</li></ul></li></ul>	<ul style="list-style-type: none"><li>Network adapters<ul style="list-style-type: none"><li>Bluetooth Device (Personal Area Network)</li><li>Bluetooth Device (RFCOMM Protocol TDI)</li><li>Qualcomm QCA9377 802.11ac Wireless Adapter</li><li>Realtek PCIe FE Family Controller #2</li><li>WAN Miniport (IKEv2)</li><li>WAN Miniport (IP)</li><li>WAN Miniport (IPv6)</li><li>WAN Miniport (L2TP)</li><li>WAN Miniport (Network Monitor)</li><li>WAN Miniport (PPPOE)</li><li>WAN Miniport (PPTP)</li><li>WAN Miniport (SSTP)</li></ul></li><li>Network adapters<ul style="list-style-type: none"><li>Bluetooth Device (Personal Area Network)</li><li>Bluetooth Device (RFCOMM Protocol TDI)</li><li>Qualcomm QCA9377 802.11ac Wireless Adapter</li><li>Realtek PCIe FE Family Controller #2</li><li>WAN Miniport (IKEv2)</li><li>WAN Miniport (IP)</li><li>WAN Miniport (IPv6)</li><li>WAN Miniport (L2TP)</li><li>WAN Miniport (Network Monitor)</li><li>WAN Miniport (PPPOE)</li><li>WAN Miniport (PPTP)</li><li>WAN Miniport (SSTP)</li></ul></li></ul>

# System setup

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 **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.

Keys	Navigation
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.
	 <b>NOTE: For the standard graphics browser only.</b>
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.**

## Enabling or disabling the USB in BIOS setup program

- 1 Turn on or restart your computer.
- 2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.  
The BIOS setup program is displayed.
- 3 On the left pane, select **Settings** → **System Configuration** → **USB Configuration**.  
The USB configuration is displayed on the right pane.
- 4 Select or clear the **Enable External USB Port** check box to enable or disable it respectively.
- 5 Save the BIOS setup program settings and exit.

## Identifying the storage drive in BIOS setup program

- 1 Turn on or restart your computer.
- 2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.  
A list of storage drives is displayed under **Drives** in the **System Configuration** group.

## Checking the system memory in BIOS setup program

- 1 Turn on or restart your computer.
- 2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.
- 3 On the left pane, select **Settings** → **General** → **System Information**.  
The memory information is displayed on the right pane.

# System setup options

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

**Table 9. System setup options—System information menu**

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## General-System Information

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### 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.

### 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.

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## General-System Information

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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.

### Device Information

M.2 SATA	Displays the M.2 SATA SSD device information of the computer.
M.2 PCIe SSD-0	Displays the M.2 PCIe SSD information of the computer.
Video Controller	Displays the video controller type of the computer.
dGPU Video Controller	Displays the discrete graphics information of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.
Video Memory	Displays the video memory information of the computer.
Panel Type	Displays the Panel Type of the computer.
Native Resolution	Displays the native resolution of the computer.
Audio Controller	Displays the audio controller information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Bluetooth Device	Displays the bluetooth device information of the computer.

### Battery Information

Displays the battery health information.

### Boot Sequence

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

---

## General-System Information

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### Advanced Boot Options

Enable Legacy Option ROMs      Enable or disable the Legacy Option ROMs.

Enable Attempt Legacy Boot      Enable or disable Legacy Boot.

**UEFI Boot Path Security**      Enable or disable the system to prompt the user to enter the Admin password when booting a UEFI boot path from the F12 boot menu.

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

**Table 10. System setup options—System Configuration menu**

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## System Configuration

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**SATA Operation**      Configure operating mode of the integrated SATA hard drive controller.

**Drives**      Enable or disable various drives on board.

**SMART Reporting**      Enable or disable SMART Reporting during system startup.

### USB Configuration

Enable USB 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.

**Audio**      Enable or disable the integrated audio controller.

**Keyboard Illumination**      Enables you to choose the operating mode of the keyboard illumination feature.

**Keyboard Backlight with AC Power**      When the backlight is enabled, if Fn+F10 keys are pressed to disable the backlight, the backlight stays off regardless of AC state.

**Miscellaneous Devices**      Enable or disable various onboard devices.

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**System Configuration**

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Enable Camera	Enable or disable the camera.
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**Table 11. System setup options—Video menu**

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**Video**

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<b>LCD Brightness</b>	Set the panel brightness independently for Battery and AC power.
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**Table 12. System setup options—Security menu**

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**Security**

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<b>Admin Password</b>	Set, change, or delete the administrator password.
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<b>System Password</b>	Set, change, or delete the system password.
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<b>Strong Password</b>	Enable or disable strong passwords.
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<b>Password Configuration</b>	Control the minimum and maximum number of characters allowed for Admin and System passwords.
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<b>Password Bypass</b>	Bypass the System (Boot) Password and the internal HDD password prompts during a system restart.
------------------------	--

<b>Password Change</b>	Enable or disable changes to the System and Hard Disk passwords when an administrator password is set.
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<b>Non-Admin Setup Changes</b>	Determines whether changes to the setup option are permitted when an administrator password is set.
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<b>UEFI Capsule Firmware Updates</b>	Enable or disable BIOS updates through UEFI capsule update packages.
--------------------------------------	--

<b>PTT Security</b>	Enable or disable Platform Trust Technology (PTT) visibility to the operating system.
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<b>Computrace(R)</b>	Enable or disable the BIOS module interface of the optional Computrace(R) Service from Absolute Software.
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<b>CPU XD Support</b>	Enable or disable the Execute Disable mode of the Processor.
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**Security**

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<b>Admin Setup Lockout</b>	Enable to prevent users from entering Setup when an Admin Password is set.
<b>Master Password Lockout</b>	Disables the master password support. Hard Disk passwords need to be cleared before changing the setting.

**Table 13. System setup options—Secure Boot menu**

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**Secure Boot**

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<b>Secure Boot Enable</b>	Enable or disable the secure boot feature.
<b>Expert Key Management</b>	
Expert Key Management	Enable or disable Expert Key Management.
Custom Mode Key Management	Select the custom values for expert key management.

**Table 14. System setup options—Intel Software Guard Extensions menu**

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**Intel Software Guard Extensions**

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<b>Intel SGX Enable</b>	Enable or disable Intel Software Guard Extensions.
<b>Enclave Memory Size</b>	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.

**Performance**

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

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## Intel Software Guard Extensions

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	Default: Enabled.
<b>HyperThread control</b>	Enable or disable HyperThreading in the processor. Default: Enabled.

### Power Management

<b>AC Behavior</b>	Enables the system to turn on automatically, when AC power is supplied.
<b>Enable Intel Speed Shift Technology</b>	Enable or disable Intel Speed Shift Technology.
<b>Auto On Time</b>	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.
<b>USB Wake Support</b>	Enable the USB devices to wake the computer from Standby.
<b>Peak Shift</b>	Enable or disable the minimal usage of AC power at times of peak demand.
<b>Primary Battery Charge Configuration</b>	Set the primary battery charge settings with a preselected custom charge start and stop. Default: Adaptive.

### POST Behavior

<b>Adapter Warnings</b>	Enable adapter warnings. Default: Enabled.
<b>Fn Lock Options</b>	Enable or disable the Fn lock mode.
<b>Fastboot</b>	Enable to set the speed of the boot process. Default: Thorough.
<b>Extend BIOS POST Time</b>	Configure additional pre-boot delay.
<b>Full Screen Logo</b>	Enable or disable to display full screen logo.
<b>Warnings and Errors</b>	Configure the Warnings and Errors options which causes the boot process to pause when warnings or errors are detected, rather than stop, prompt and wait for user input.

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**Intel Software Guard Extensions**

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Prompt on Warnings and Errors	Enable or disable Prompt on Warnings and Errors
Continue on Warnings	Enable or disable Continue on Warnings
Continue on Warnings and Errors	Enable or disable Continue on Warnings and Errors

**Table 15. System setup options—Virtualization Support menu**

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**Virtualization Support**

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

**Table 16. System setup options—Wireless menu**

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**Wireless**

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

**Table 17. System setup options—Maintenance menu**

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**Maintenance**

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<b>Service Tag</b>	Display the system's Service Tag.
<b>Asset Tag</b>	Create a system Asset Tag.
<b>BIOS Downgrade</b>	Control flashing of the system firmware to previous revisions.
<b>BIOS Recovery</b>	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 18. System setup options—System Logs menu**

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<b>System Logs</b>	
<b>BIOS Events</b>	Display BIOS events.
<b>Thermal Events</b>	Display Thermal events.
<b>Power Events</b>	Display Power events.

**Table 19. System setup options—SupportAssist System Resolution menu**

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

# System and setup password

**Table 20. System and setup password**

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.

You can create a system password and a setup password to secure 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: System and setup password feature is disabled.**

## Assigning a system setup password

You can assign a new **System or Admin 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/Admin 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 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 prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.**

- 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 reboot.

## Clearing CMOS settings



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

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

- 3 Wait for one minute.
- 4 Replace the [coin-cell battery](#).
- 5 Replace the [base cover](#).

## **Clearing BIOS (System Setup) and System passwords**

Contact Dell technical support to clear the forgotten passwords. For more information, see [www.dell.com/contactdell](http://www.dell.com/contactdell).

# Troubleshooting

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## 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.

## 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](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.

## 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](http://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.

## Fixing a no-boot issue caused by USB-boot support

Sometimes the computer does not boot to the operating system when USB devices are connected to the computer during startup. This behavior occurs because the computer is looking for bootable files in connected USB devices.

Either disconnect USB devices before booting or follow these steps to fix the no-boot issue.

- 1 Turn on or restart your computer.
- 2 Press F2 when the Dell logo is displayed on the screen to enter the BIOS setup program.  
The BIOS setup program is displayed.
- 3 On the left pane, select **Settings** → **System Configuration** → **USB Configuration**.  
The USB configuration is displayed on the right pane.
- 4 Clear the **Enable Boot Support** check box to disable it.
- 5 Save the settings and exit.

# Enhanced Pre-Boot System Assessment (ePSA) diagnostics

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

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

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

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

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

## Running the ePSA diagnostics

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

- 8 If there are any issues, error codes are displayed.  
Note the error code and validation number and contact Dell.

## System diagnostic lights

### 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 21. 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

Light pattern	Problem description
3,2	PCI or video card or chip failure
3,3	Recovery image not found
3,4	Recovery image found but invalid

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

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

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

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

## Wi-Fi power cycle

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

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

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

# Getting help and contacting Dell

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## Self-help resources

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

### Table 22. Self-help resources

Information about Dell products and services

[www.dell.com](http://www.dell.com)

Dell Help & Support app



Tips



Contact Support

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

Online help for operating system

[www.dell.com/support/windows](http://www.dell.com/support/windows)

[www.dell.com/support/linux](http://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](http://www.dell.com/support)

Dell knowledge base articles for a variety of computer concerns.

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

Learn and know the following information about your product:

See *Me and My Dell* at [www.dell.com/support/manuals](http://www.dell.com/support/manuals).

- Product specifications
- Operating system

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

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

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

## Contacting Dell

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



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



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