Dell G5 15

Service Manual

Computer Model: Dell G5 5587
Regulatory Model: P72F
Regulatory Type: P72F002

Identifier	GUID-5B8DE7B7-879F-45A4-88E0-732155904029
Status	Released

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.

Identifier	GUID-089FFA4B-3A62-4B51-BDE1-309C58A451D9
Status	Released

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Identifier	GUID-5D3B1051-9384-409A-8D5B-
Status	Released

Before working inside your computer

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

Topics:

- Before you begin
- Safety instructions
- Recommended tools
- Screw list

Identifier	GUID-B2521C24-A407-4ABB-8022-6D88B53F0B94
Status	Released

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.

Identifier	GUID-71128823-CE64-4E17-9439-DEE95AF668C4
Status	Released

Safety instructions

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

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

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

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

CAUTION: To avoid damaging the components and cards, handle them by their edges, and avoid touching pins and contacts.

CAUTION: You should only perform troubleshooting and repairs as authorized or directed by the Dell technical assistance team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. See the safety instructions that shipped with the product or at www.dell.com/regulatory_compliance.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

CAUTION: When you disconnect a cable, pull on its connector or on its pull tab, not on the cable itself. Some cables have connectors with locking tabs or thumb-screws that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, ensure that the ports and connectors are correctly oriented and aligned.

CAUTION: Press and eject any installed card from the media-card reader.

Identifier	GUID-EC500BF6-C045-4442-B7F1-7CA511C80308
Status	Released

Recommended tools

The procedures in this document may require the following tools:

- Philips screwdriver #0
- Philips screwdriver #1
- Flat-head screwdriver
- Plastic scribe

Identifier	GUID-F5BD3829-A3B7-400D-80C6-B476E9A5AB86
Status	Released

Screw list

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Battery	Computer base	M2.5x6	3	
Solid-state drive	Computer base	M3x3	1	
Hard-drive assembly	Computer base	M2.5x3	4	
Hard-drive bracket	Hard drive	M3x3	4	
Wireless card	Wireless card bracket and system board	M2x3	1	
Rear cover	Computer base	M2x2	4	
Display-cable bracket	Computer base	M2x3	1	

Component	Secured to	Screw type	Quantity	Screw image
Computer base	Palm-rest assembly	M2.5x6	19	
Computer base	Palm-rest assembly	M2x3	4	
Touchpad	Palm-rest assembly	M2x2	4	
Fans	System board	M2x3	4	
Status-light board	Computer base	M2x3	1	
Power-button board	Palm-rest assembly	M2x3	2	
Power-adapter port bracket	Computer base	M2.5x5	2	
Fingerprint-reader board bracket	Palm-rest assembly	M2x2	2	
USB Type-C port bracket	System board	M2.5x5	2	
System board	Computer base	M2.5x5	3	
Keyboard bracket	Palm-rest assembly	M1.6x2.2	30	
Heat-sink assembly	System board	M2x3	6	
Display assembly	Palm-rest assembly	M2.5x5	2	
Display hinges	Display back-cover and antenna assembly	M2.5x2.5	8	
Display panel	Display back-cover and antenna assembly	M2x2.5	4	

Identifier	GUID-06588814-2678-4667-9FF9-C
Status	Released

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.

Identifier	GUID-98068FC2-1C1C-46DE-B3FA
Status	Released

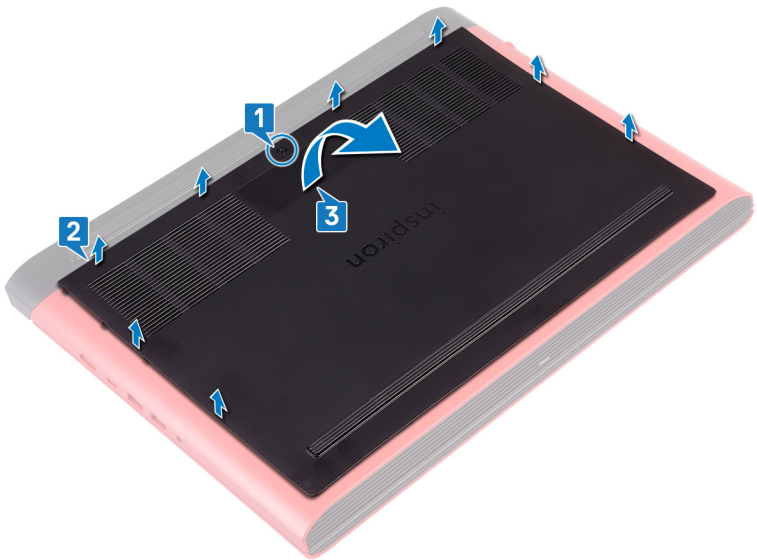
Removing the base cover

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.

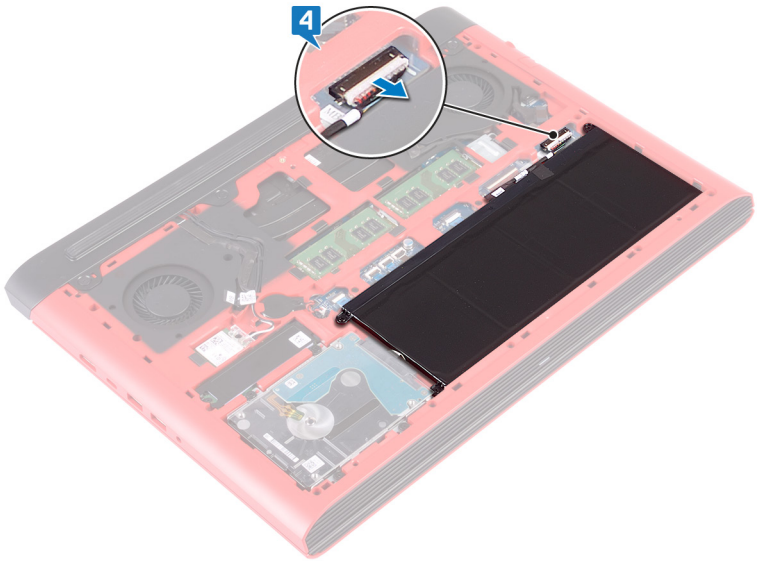
Identifier	GUID-7AF2D82B-A717-4FA4-8F74-2DF32F6FD572
Status	Released

Procedure

1 Loosen the captive screw that secures the base cover to the computer base.
2 Using your fingertips, gently pry the base cover to release the tabs from the slots on the computer base.
3 Lift the base cover off the computer base.



4 Disconnect the battery cable from the system board.


4

Identifier	GUID-27446428-82D7-4881-9220-9
Status	Released

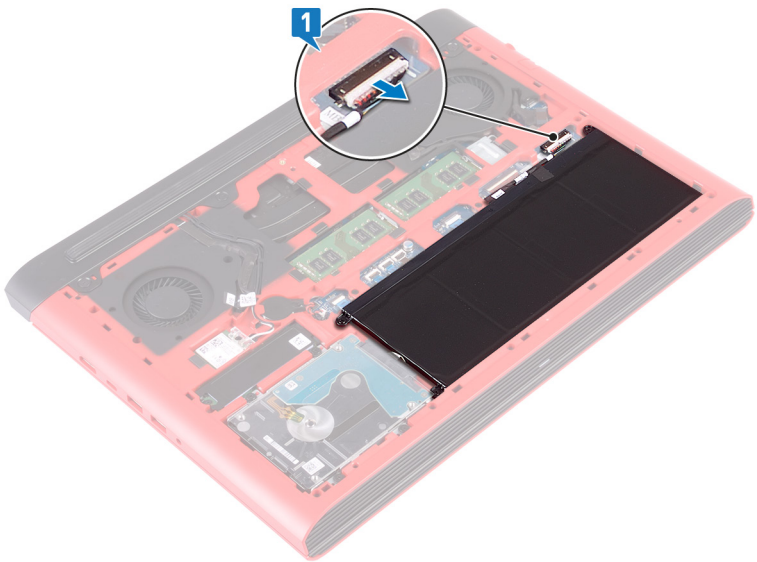
Replacing the base cover

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.

Identifier	GUID-76A4C0B3-D28C-488F-84C1-9852DA6FA5BE
Status	Released

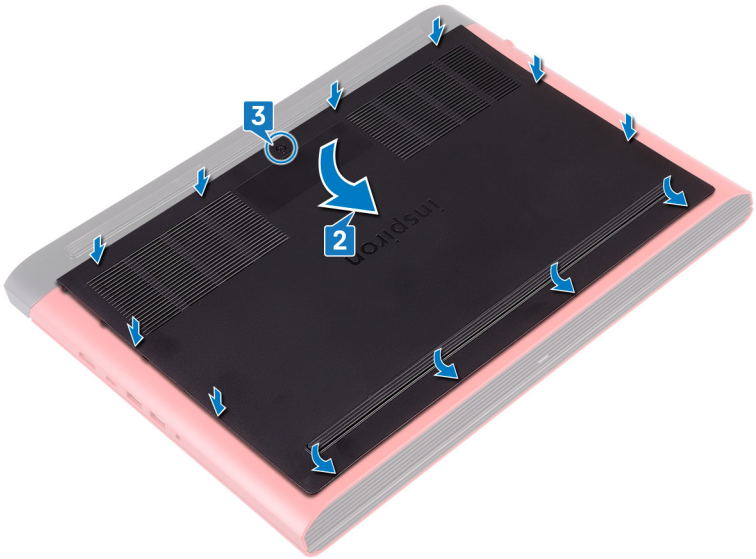
Procedure

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 captive screw that secures the base cover to the computer base.


3
2

Identifier	GUID-D9015C06-6CEE-42EA-9215-
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-40DD66AC-7BD6-4099-BEFD-4117D67151D6
Status	Released

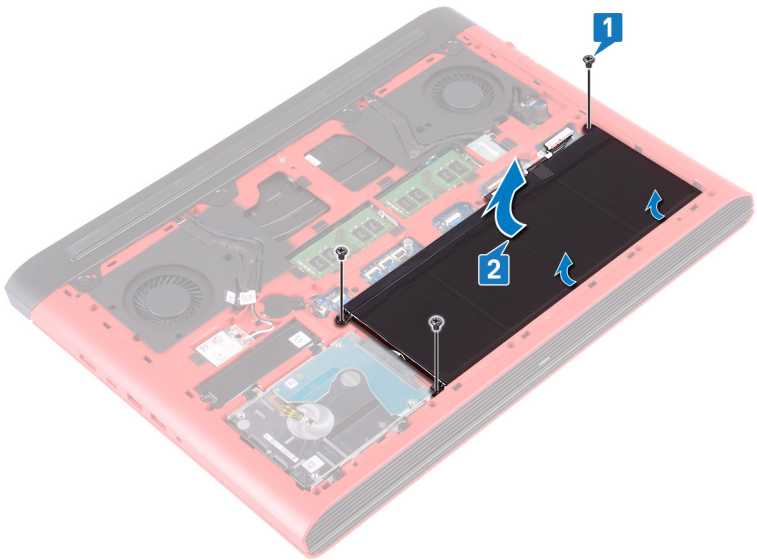
Prerequisites

Remove the base cover.

Identifier	GUID-6C64D10F-6A5A-486B-A061-C4BC045E6140
Status	Released

Procedure

1 Remove the three screws (M2.5x6) that secure the battery to the computer base.
2 Lift the battery at an angle off the computer base.



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

Identifier	GUID-E15EE482-44FD-4E71-91FC-
Status	Released

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.

Topics:

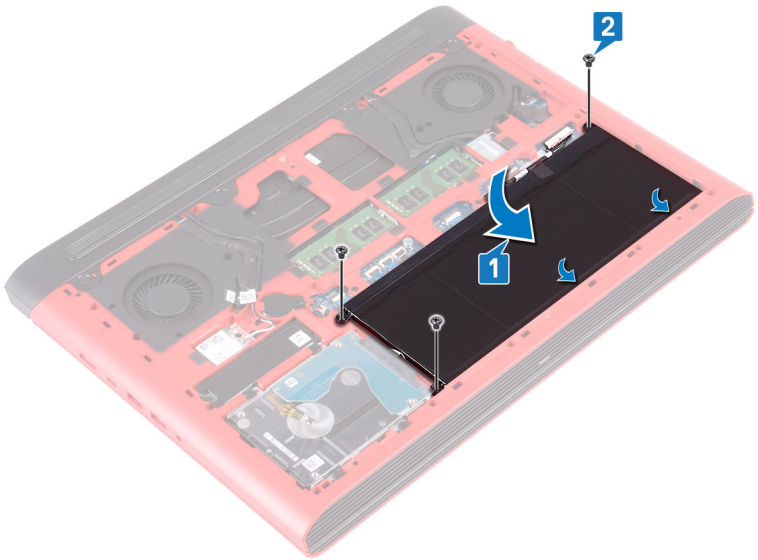
- Procedure
- Post-requisites

Identifier	GUID-CF3ABC2C-27D4-4520-8352-882EB878CED0
Status	Released

Procedure

1 Slide the battery in the slot on the computer base and align the screw holes on the battery with the screw holes on the computer base.

2 Replace the three screws (M2.5x6) that secure the battery to the computer base.



Identifier	GUID-B24ACA65-0D59-4C09-9CC9-A05E7E6EB280
Status	Released

Post-requisites

Replace the base cover.

Identifier	GUID-AAC0DC5A-1680-492D-804F
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-40DD66AC-7BD6-4099-BEFD-4117D67151D6
Status	Released

Prerequisites

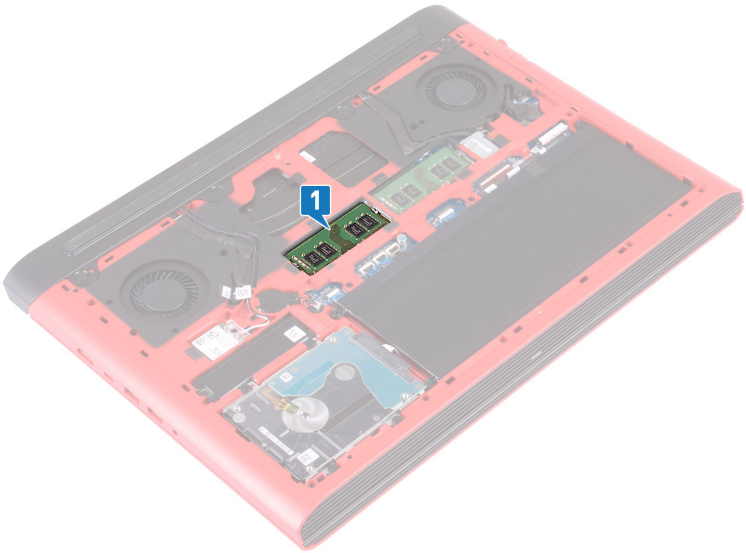
Remove the base cover.

Identifier	GUID-CBEFBBF4-62A9-4BCB-954B-2AA0B84CBBD8
Status	Released

Procedure

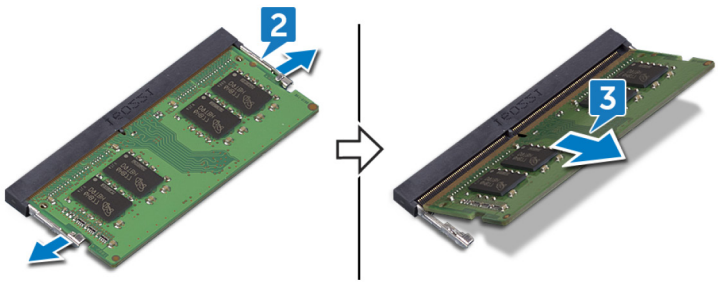
1 Locate the memory module on the system board.

NOTE: Depending on the configuration ordered, the computer may have up to two memory modules.



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.



Identifier	GUID-1F5023F5-9868-4AAF-A9F5-[illegible]
Status	Released

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.

Topics:

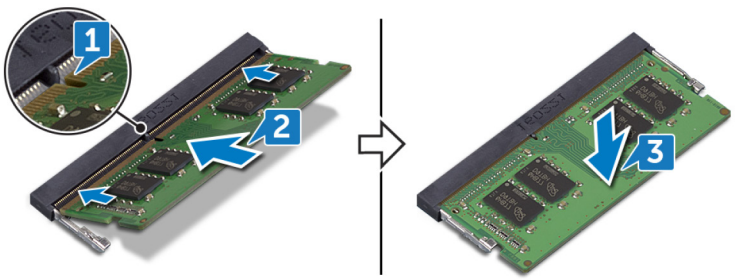
- Procedure
- Post-requisites

Identifier	GUID-A06594EA-F6EE-452D-82A1-77B24CAA2BC8
Status	Released

Procedure

1 Align the notch on the memory module with the tab on the memory-module slot.
2 Slide the memory module firmly into the slot at an angle.
3 Press the memory module down until it clicks into place.

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



Identifier	GUID-B24ACA65-0D59-4C09-9CC9-A05E7E6EB280
Status	Released

Post-requisites

Replace the base cover.

Identifier	GUID-1C25F362-25CF-40CD-8A9B-
Status	Released

Removing the solid-state drive

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

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

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

Topics:

- Prerequisites
- Procedure

Identifier	GUID-40DD66AC-7BD6-4099-BEFD-4117D67151D6
Status	Released

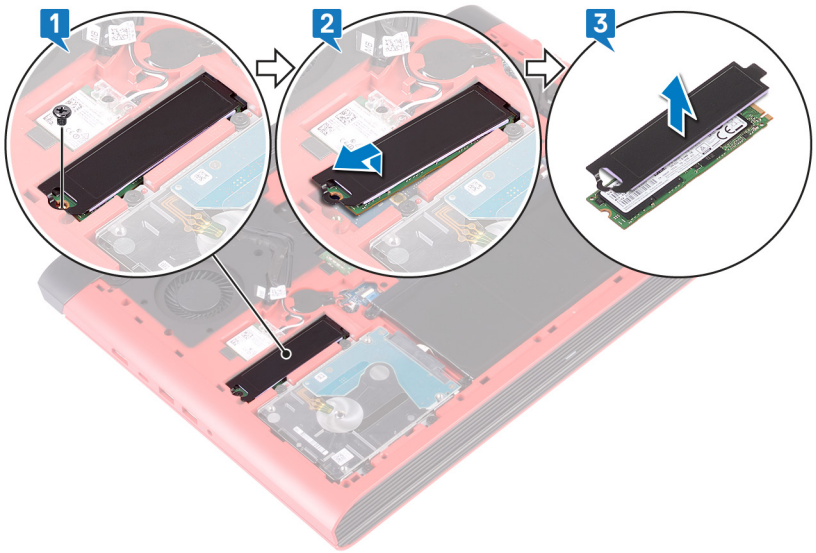
Prerequisites

Remove the base cover.

Identifier	GUID-97A7EBF9-6264-4712-9234-F5FC3D5677F6
Status	Released

Procedure

1 Remove the screw (M3x3) that secures the solid-state drive to the computer base.
2 Slide the solid-state drive from the solid-state drive slot.
3 Peel the solid-state drive shield off the solid-state drive.


1
2
3

Identifier	GUID-792E5316-8EFA-4894-AE68-9
Status	Released

Replacing the solid-state drive

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

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

Topics:

- Procedure
- Post-requisites

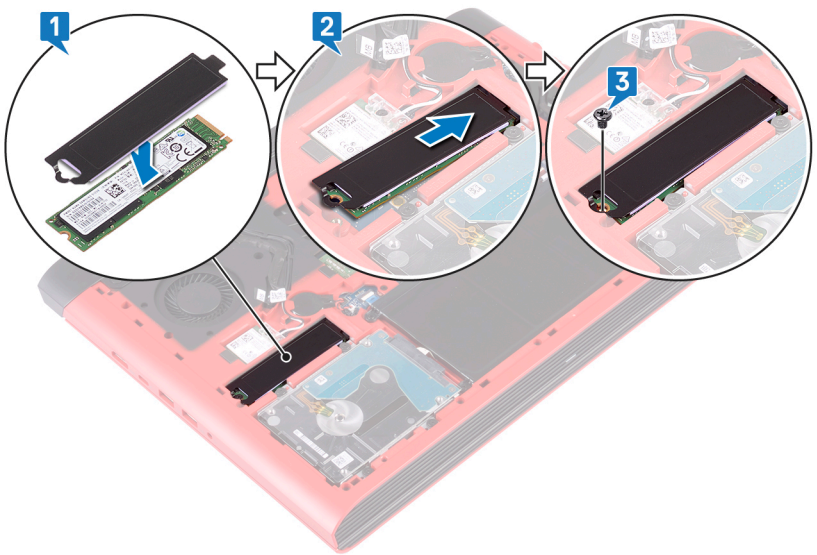
Identifier	GUID-7819AAF2-F571-4A50-AB44-2B257C03B002
Status	Released

Procedure

1 Adhere the solid-state drive shield to the solid-state drive.

2 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.

3 Replace the screw (M3x3) that secures the solid-state drive to the computer base.



Identifier	GUID-B24ACA65-0D59-4C09-9CC9-A05E7E6EB280
Status	Released

Post-requisites

Replace the base cover.

Identifier	GUID-30EEBC49-DE3E-4C3F-8226
Status	Released

Removing the coin-cell battery

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

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

Topics:

- Prerequisites
- Procedure

Identifier	GUID-40DD66AC-7BD6-4099-BEFD-4117D67151D6
Status	Released

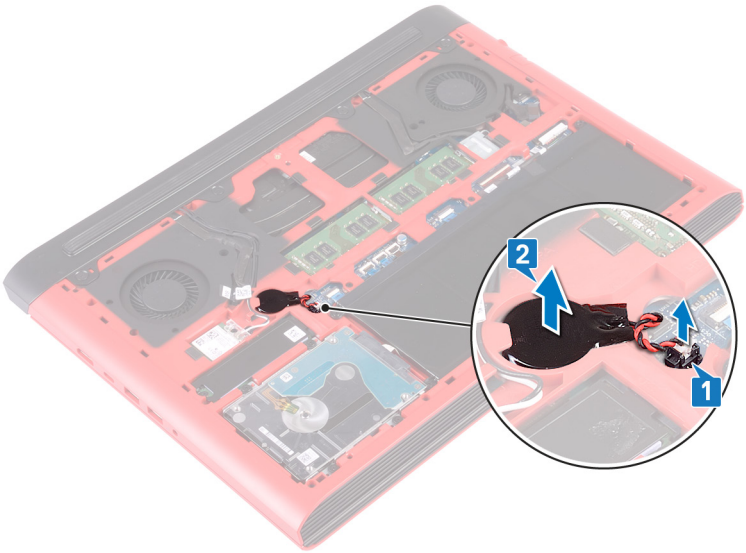
Prerequisites

Remove the base cover.

Identifier	GUID-239ABB61-4AFE-4E44-8A20-DEA76C642ADA
Status	Released

Procedure

1 Disconnect the coin-cell battery cable from the system board.
2 Peel off the coin-cell battery from the battery socket on the computer base.


2
1

Identifier	GUID-5E22F4A0-F01F-4522-8155-E
Status	Released

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.

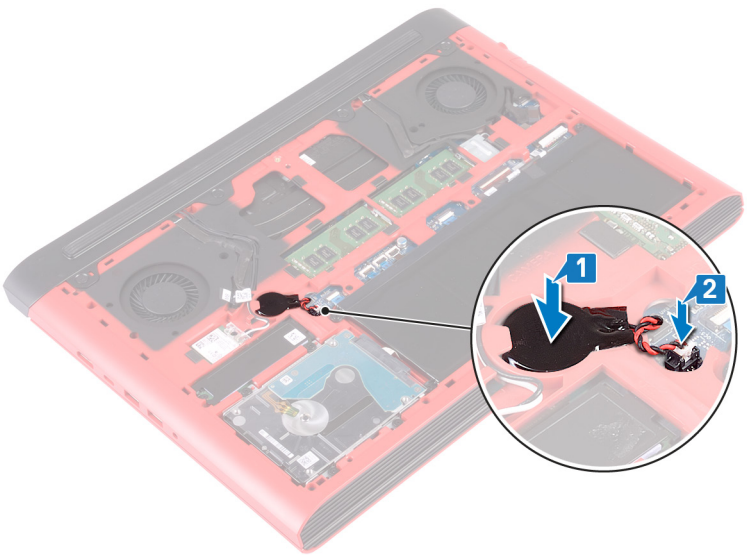
Topics:

- Procedure
- Post-requisites

Identifier	GUID-4946278E-AFCA-4372-8E1B-A66B23B26DBC
Status	Released

Procedure

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



Identifier	GUID-B24ACA65-0D59-4C09-9CC9-A05E7E6EB280
Status	Released

Post-requisites

Replace the base cover.

Identifier	GUID-4AF7A7F4-79DC-43F4-A4DF
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-40DD66AC-7BD6-4099-BEFD-4117D67151D6
Status	Released

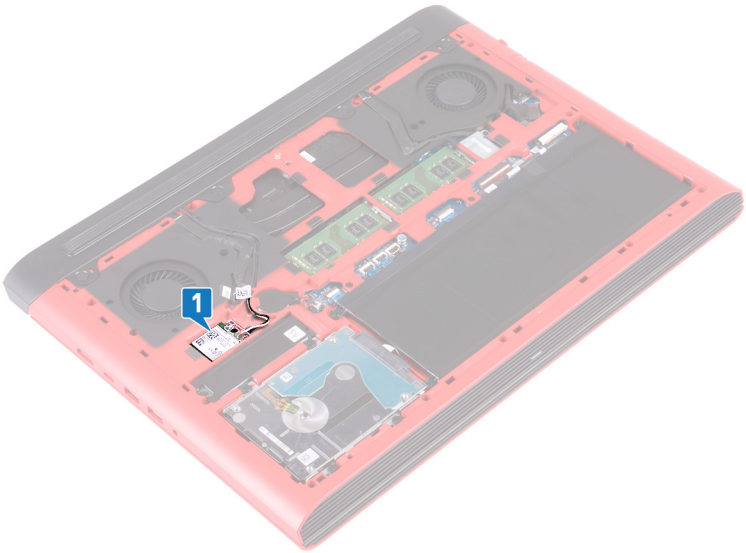
Prerequisites

Remove the base cover.

Identifier	GUID-26A6C083-2E3F-42B4-9106-6C20F70859CC
Status	Released

Procedure

1 Locate the wireless card on the system board.

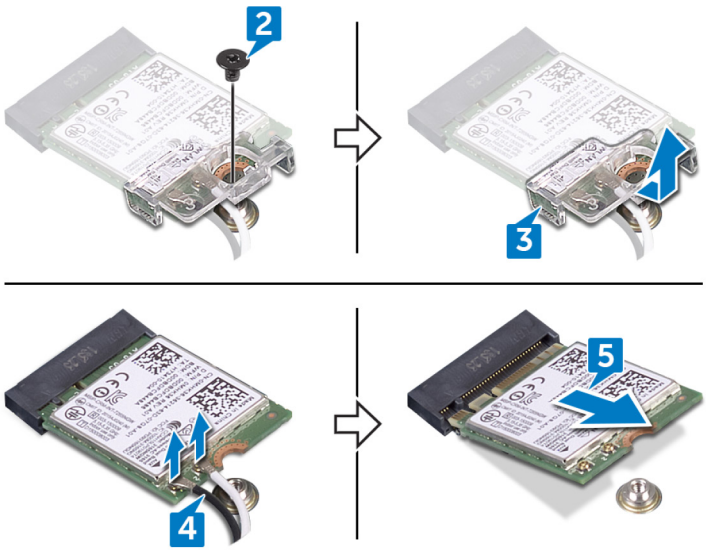


2 Remove the screw (M2x3) that secures the wireless-card bracket to the wireless card and system board.

3 Remove the wireless-card bracket from the wireless card.

4 Disconnect the antenna cables from the wireless card.

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



Identifier	GUID-94E88AEC-6F12-4B0E-AA6A
Status	Released

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.

Topics:

- Procedure
- Post-requisites

Identifier	GUID-FE0434FE-30B0-4954-AB36-4D47B88E4E67
Status	Released

Procedure

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

1 Align the notch on the wireless card with the tab on the wireless-card slot and slide the wireless card at an angle into the wireless-card slot.

2 Connect the antenna cables to the wireless card.

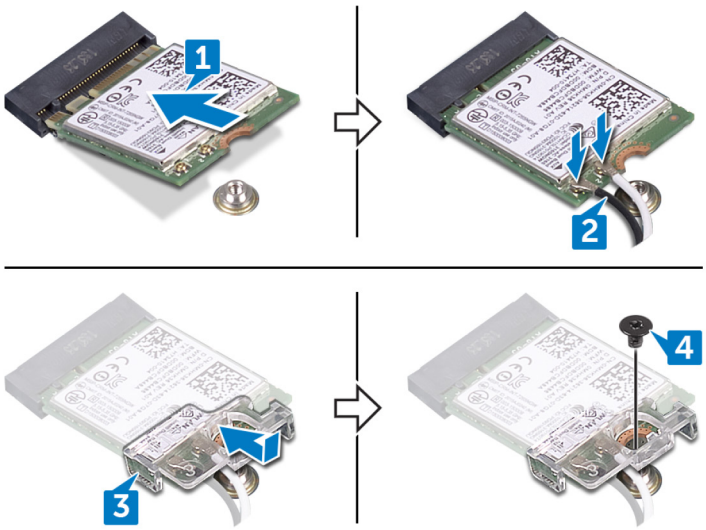
The following table provides the antenna-cable color scheme for the wireless card supported by your computer.

Table 2. Antenna-cable color scheme

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

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

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



Identifier	GUID-B24ACA65-0D59-4C09-9CC9-A05E7E6EB280
Status	Released

Post-requisites

Replace the base cover.

Identifier	GUID-21C23FE4-8B12-456E-B414-
Status	Released

Removing the rear 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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-40DD66AC-7BD6-4099-BEFD-4117D67151D6
Status	Released

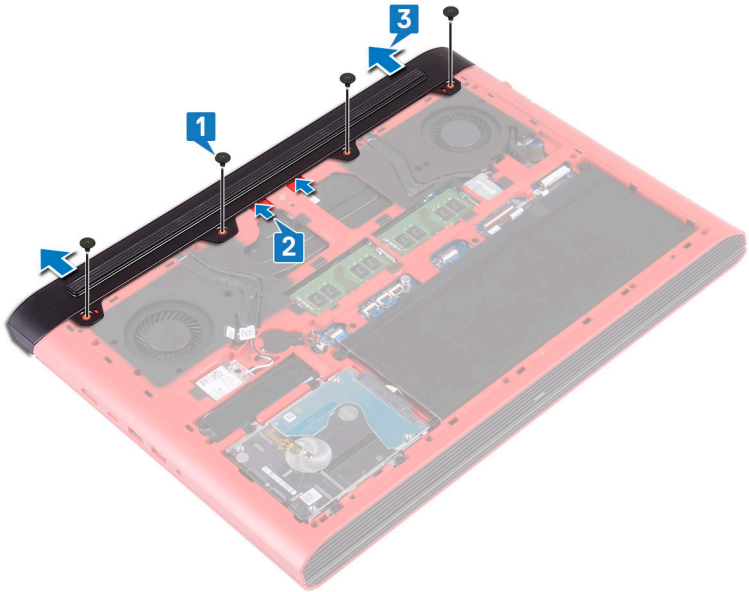
Prerequisites

Remove the base cover.

Identifier	GUID-E27628AB-ED16-47A9-B971-E71B3C60BFF7
Status	Released

Procedure

1. Remove the four screws (M2x2) that secure the rear cover to the computer base.
2. Using a plastic scribe, release the tabs on the rear cover from the slots on the computer base.
3. Pry the rear cover starting from the center, to the left and then to the right.
4. Remove the rear cover from the computer base.


3
1
2

Identifier	GUID-51F6F052-95CC-40F8-98EC-
Status	Released

Replacing the rear 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.

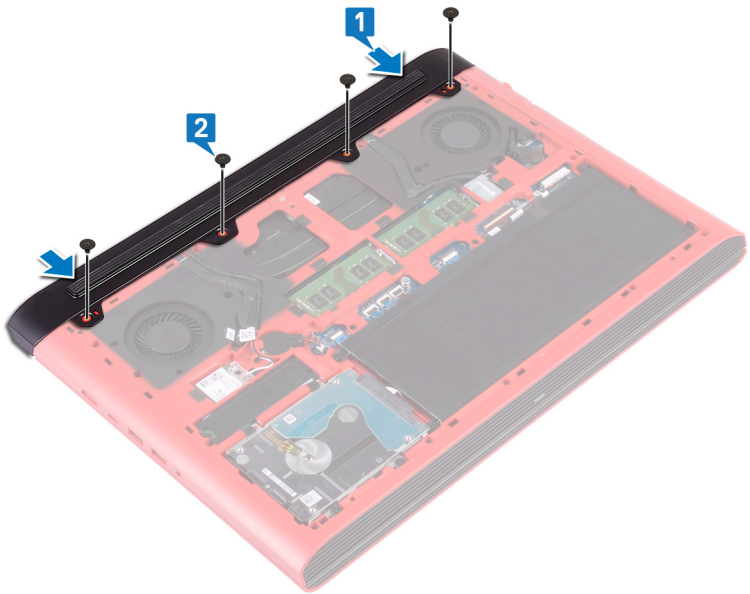
Topics:

- Procedure
- Post-requisites

Identifier	GUID-A2991AA0-1314-458A-A31C-F30AC0850A66
Status	Released

Procedure

1 Slide the tabs on the rear cover into the slots on the computer base and snap the rear cover into place.
2 Replace the four screws (M2x2) that secure the rear cover to the computer base.



Identifier	GUID-B24ACA65-0D59-4C09-9CC9-A05E7E6EB280
Status	Released

Post-requisites

Replace the base cover.

Identifier	GUID-5DE1E07B-4633-4536-ACBF-
Status	Released

Removing the hard drive

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

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

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

Topics:

- Prerequisites
- Procedure

Identifier	GUID-56C076BA-06B1-4E4A-919C-52BC110AFAB0
Status	Released

Prerequisites

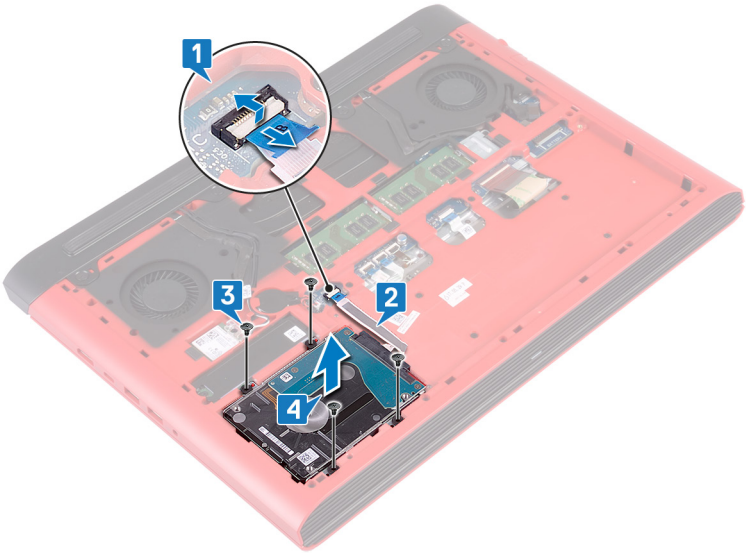
1 Remove the base cover.
2 Remove the battery.

Identifier	GUID-E23204B9-0EB5-45E3-B354-164D32CD20F1
Status	Released

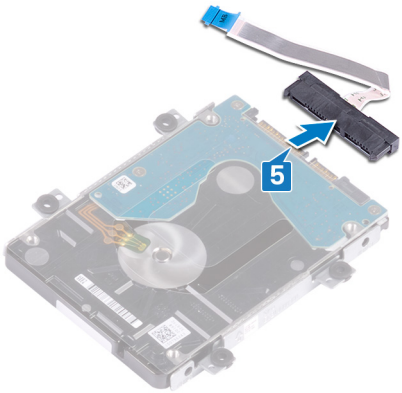
Procedure

NOTE: The latch on the hard-drive locking connector is fragile. Pulling the latch forcefully may damage the hard-drive locking connector. Exercise care when handling the latch on the hard-drive locking connector.

1 Open the latch and disconnect the hard-drive cable from the system board.
2 Peel off the hard-drive cable from the computer base.
3 Remove the four screws (M2.5x3) that secure the hard-drive assembly to the computer base.
4 Lift the hard-drive assembly, along with its cable, off the computer base.

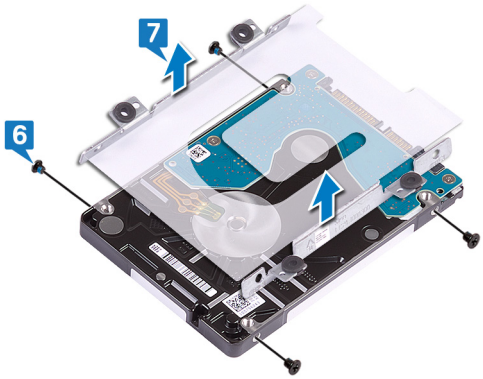


5 Disconnect the interposer from the hard-drive assembly.



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

7 Lift the hard-drive bracket off the hard drive.



Identifier	GUID-8D72BB77-0F8B-428E-A98E-
Status	Released

Replacing the hard drive

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

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

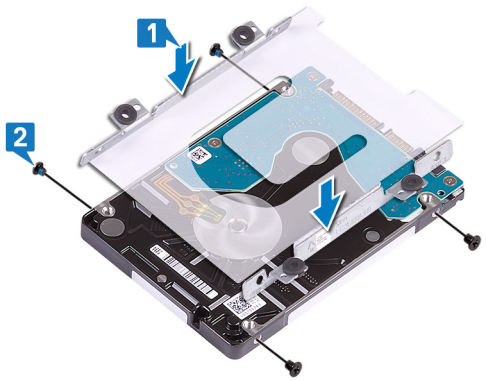
Topics:

- Procedure
- Post-requisites

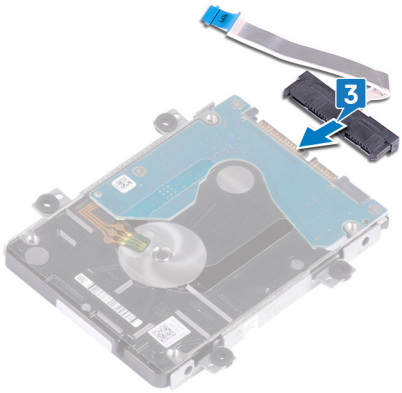
Identifier	GUID-ED6B5149-37C9-4BDC-9B95-146E983CE80B
Status	Released

Procedure

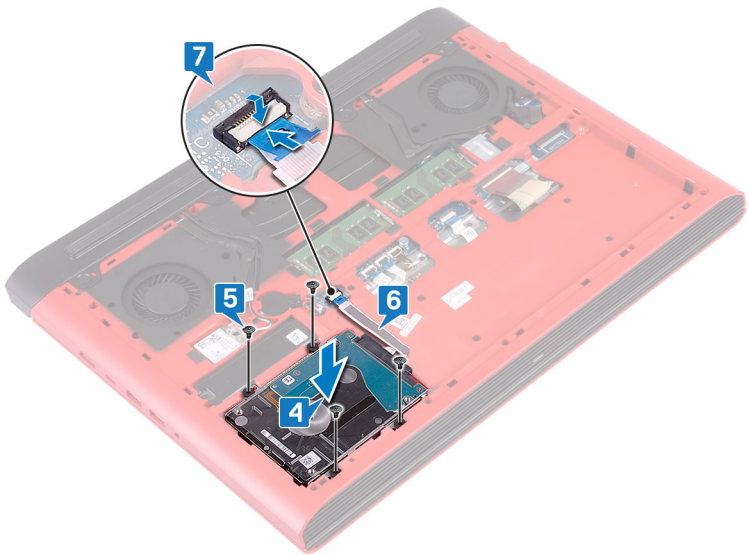
1 Align the screw holes on the hard-drive bracket with the screw holes on the hard drive.
2 Replace the four screws (M3x3) that secure the hard-drive bracket to the hard drive.



3 Connect the interposer to the hard-drive assembly.



4 Align the screw holes on the hard-drive assembly with the screw holes on the computer base.
5 Replace the four screws (M2.5x3) that secure the hard-drive assembly to the computer base.
6 Adhere the hard-drive cable to the computer base.
7 Slide the hard-drive cable into the connector on the system board and close the latch to secure the hard-drive cable.



Identifier	GUID-80134445-00E4-4B23-B20C-B5AD74BED996
Status	Released

Post-requisites

1 Replace the battery.
2 Replace the base cover.

Identifier	GUID-9688293F-8D74-48E4-A8DD-
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-6367EA32-44DD-4661-AB55-653C60D0EC34
Status	Released

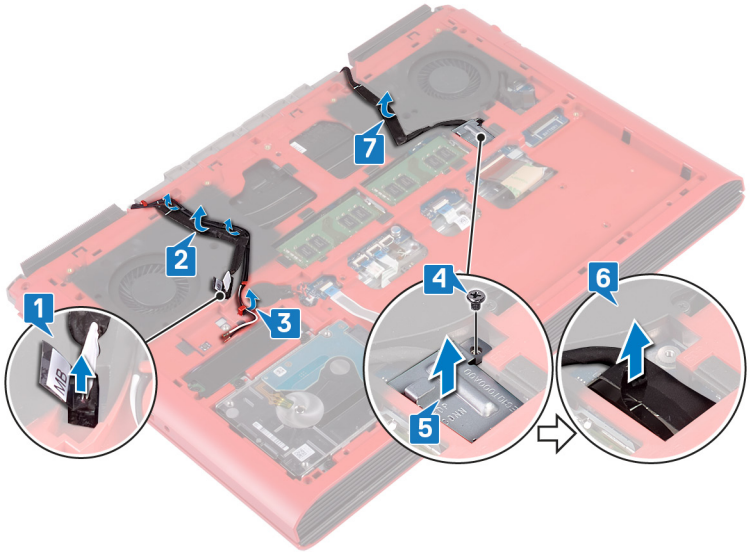
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.

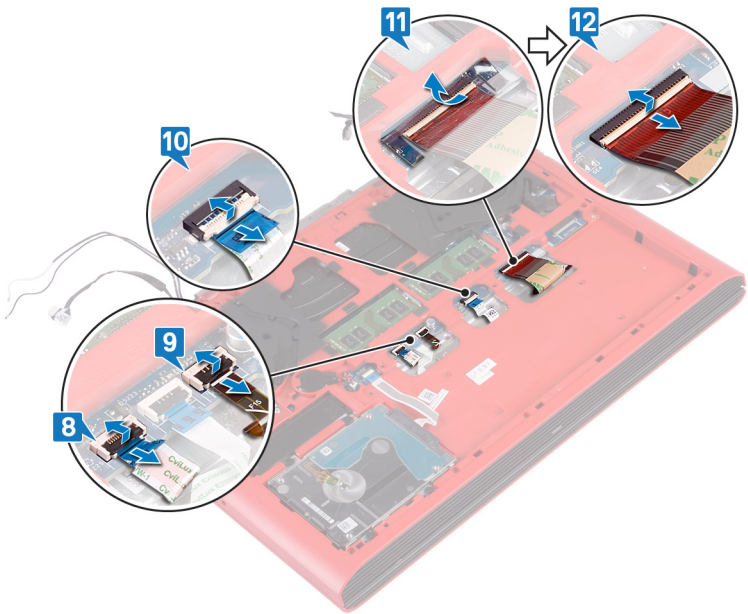
Identifier	GUID-5F7062C1-0AE2-4FA0-A6BE-89039267011D
Status	Released

Procedure

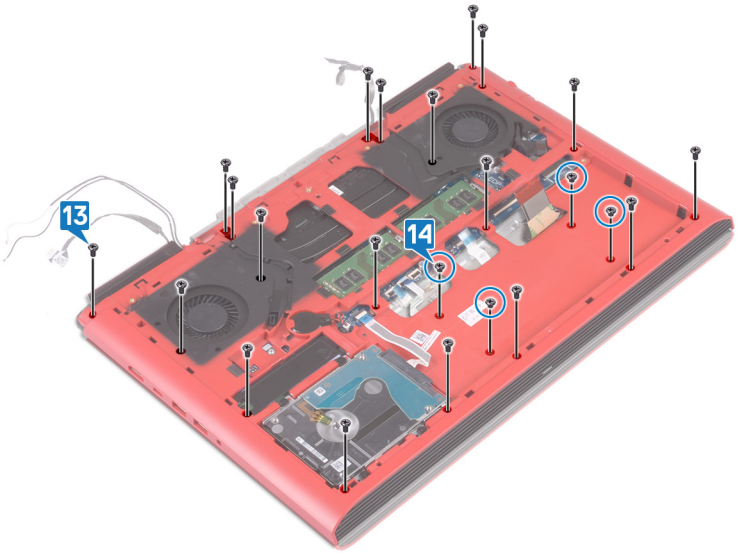
1 Using pull tab, disconnect the camera cable from the system board.
2 Peel the camera cable off the computer base.
3 Remove the antenna cables from the routing guides on the computer base.
4 Remove the screw (M2x3) that secures the display-cable bracket to the computer base.
5 Lift the display-cable bracket off the computer base.
6 Using the pull tab, disconnect the display cable from the system board.
7 Remove the display cable from the routing guides on the computer base and peel the display cable off the computer base.



8 Open the latch and disconnect the power-button board cable from the system board.
9 Open the latch and disconnect the keyboard-backlight cable from the system board.
10 Open the latch and disconnect the touchpad cable from the system board.
11 Peel off the tape that secures the keyboard cable to the system board.
12 Open the latch and disconnect the keyboard cable from the system board.



13 Remove the 19 screws (M2.5x6) that secure the computer base to the palm-rest assembly.
14 Remove the four screws (M2x3) that secure the computer base to the palm-rest assembly.

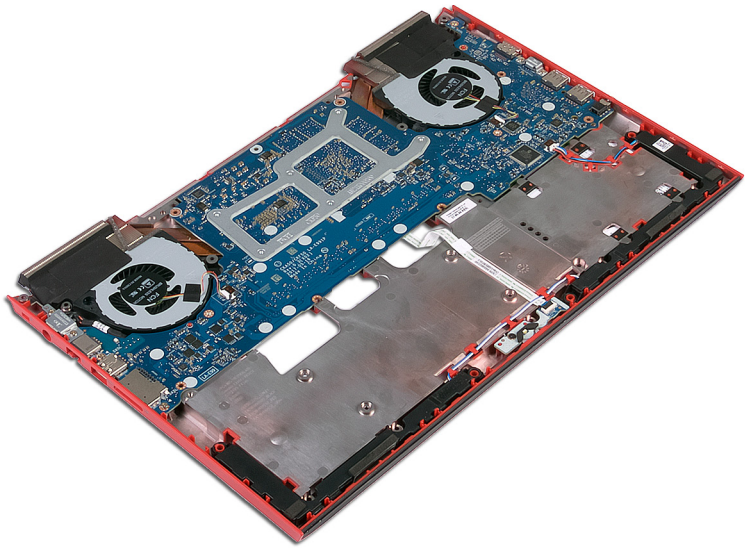


15 Turn the computer over and open the display.

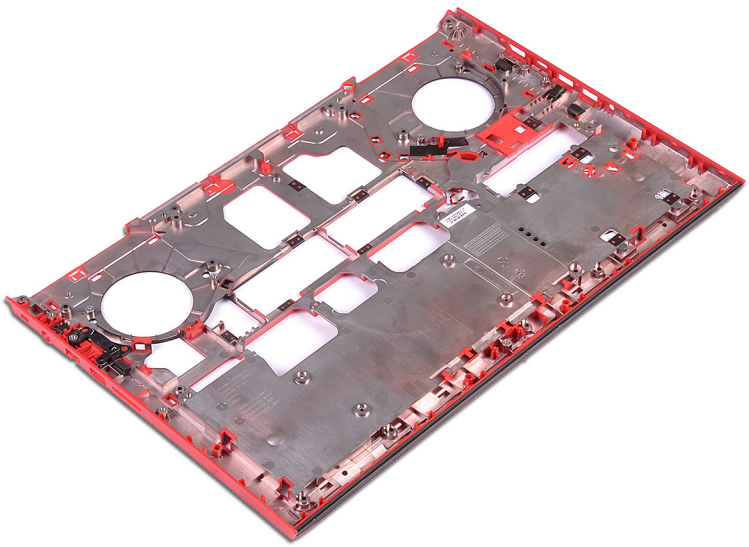
16 Using a plastic scribe, release the tabs on palm-rest assembly from the slots on the computer base.

17 Lift the palm-rest assembly, along with the display assembly, off the computer base.

18 After performing all the above steps, you are left with the computer-base assembly.



19 Remove the coin-cell battery.
20 Remove the status-light board.
21 Remove the speakers.
22 Remove the system board.
23 Remove the power-adapter port.



Identifier	GUID-BD8F2FF7-9861-42AD-82C7-
Status	Released

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.

Topics:

- Procedure
- Post-requisites

Identifier	GUID-ED790FCA-A5BF-4924-AB0B-7497249028C2
Status	Released

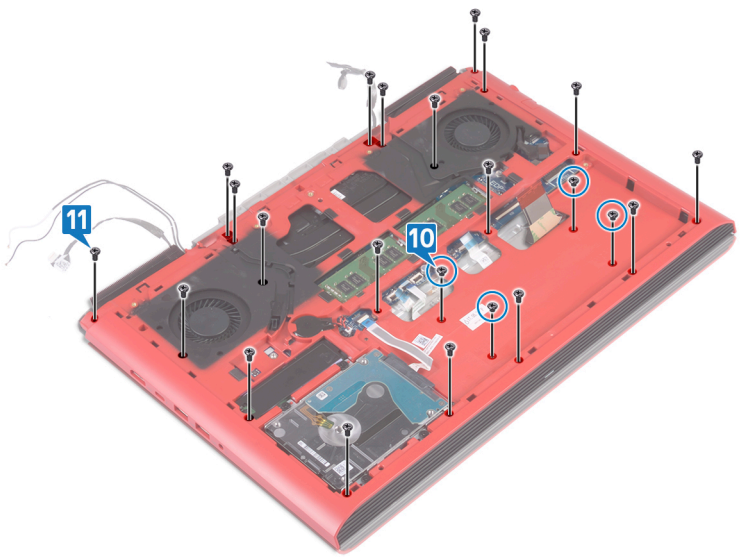
Procedure

1 Place the computer base on a clean and flat surface.
2 Replace the power-adapter port.
3 Replace the system board.
4 Replace the speakers.
5 Replace the status-light board.
6 Replace the coin-cell battery
7 Open the display and align the palm-rest assembly on the computer base.
8 Press down the edges of the palm-rest assembly and snap it into place.

9 Close the display and turn the computer over.

10 Replace the four screws (M2x3) that secure the computer base to the palm-rest assembly.

11 Replace the 19 screws (M2.5x6) that secure the computer base to the palm-rest assembly.



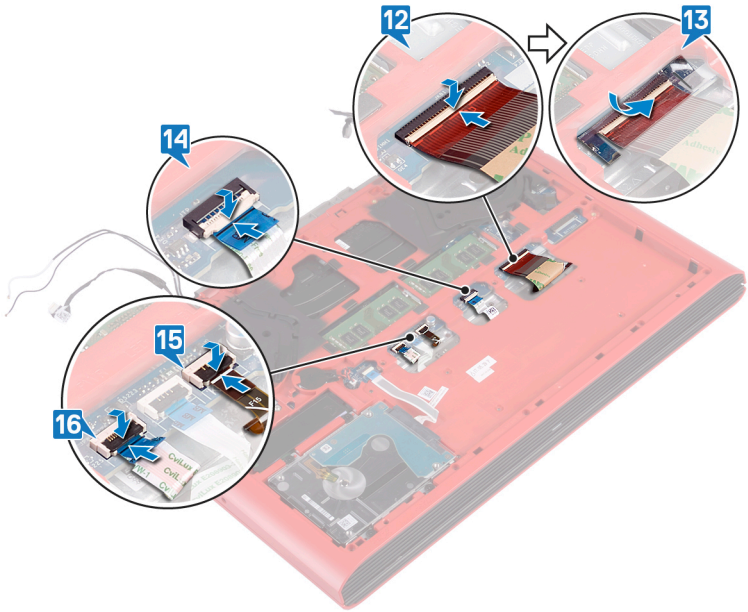
12 Slide the keyboard cable into the connector on the system board and close the latch to secure the cable.

13 Adhere the tape that secures the keyboard cable to the system board.

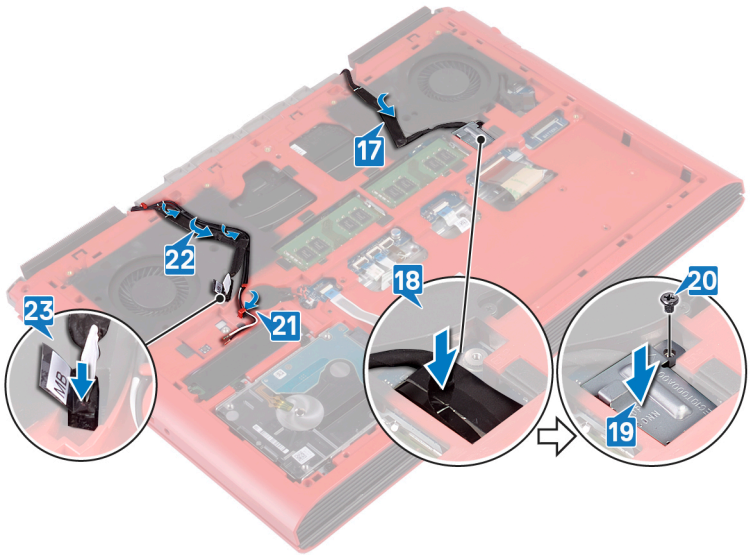
14 Slide the touchpad cable into the connector on the system board and close the latch to secure the cable.

15 Slide the keyboard-backlight cable into the connector on the system board and close the latch to secure the cable.

16 Slide the power-button board cable into the connector on the system board and close the latch to secure the cable.



17 Adhere the display cable to the computer base and route the display cable through the routing guides on the computer base.
18 Connect the display cable to the system board.
19 Align and place the display-cable bracket on the computer base.
20 Replace the screw (M2x3) that secures the display-cable bracket to the computer base.
21 Route the antenna cables through the routing guides on the computer base.
22 Adhere the camera cable to the computer base.
23 Connect the camera cable to the system board.



Identifier	GUID-09C73878-AD7B-4C30-9457-109EC332A813
Status	Released

Post-requisites

1 Replace the wireless card.
2 Replace the rear cover.

3 Replace the battery.
4 Replace the base cover.

Identifier	GUID-D3FE0BE4-9B4F-4CD6-AA62
Status	Released

Removing the status-light board

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

Topics:

- Prerequisites
- Procedure

Identifier	GUID-8F616A22-51CA-4B47-A009-3B35D552D3F6
Status	Released

Prerequisites

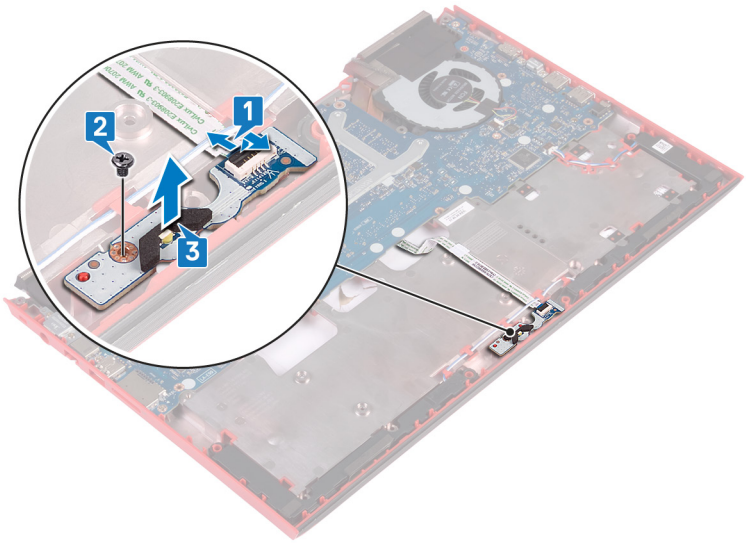
1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Follow the procedure from step 1 to step 18 in Removing the computer base.

Identifier	GUID-38245E5A-3056-4B09-B8D4-E78C5B3C90E2
Status	Released

Procedure

NOTE: The status-light board includes an LED indicator for power and battery-status light/hard-drive activity light.

1 Open the latch and disconnect the status-light board cable from the status light board.
2 Remove the screw (M2x3) that secures the status-light board to the computer base.
3 Lift the status-light board off the computer base.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Identifier	GUID-8EDA8A82-09F4-420D-8DE0-
Status	Released

Replacing the status-light board

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

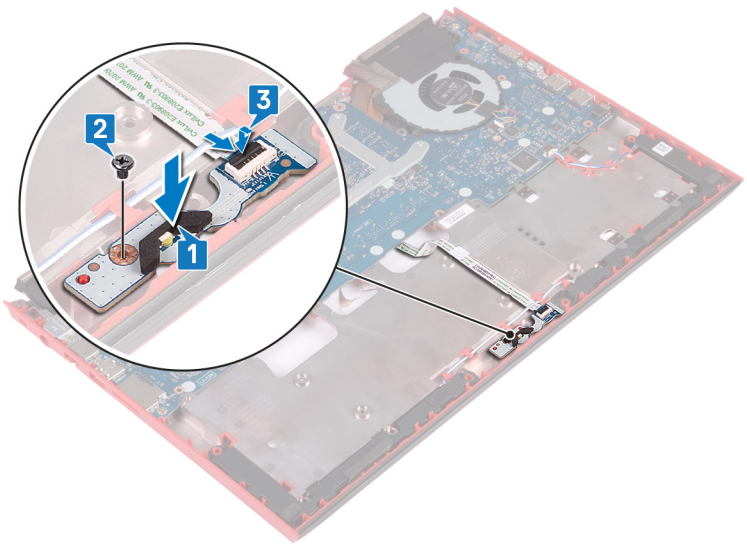
Topics:

- Procedure
- Post-requisites

Identifier	GUID-CD061A12-AE04-4335-A3EE-01D6E65E4A6C
Status	Released

Procedure

1 Align the screw holes on the status-light board with the screw holes on the computer base.
2 Replace the screw (M2x3) that secures the status-light board to the computer base.
3 Slide the status-light board cable into the connector on the status-light board and close the latch to secure the cable.



Identifier	GUID-B4298004-2FA6-4F21-973D-DE9ECD599F44
Status	Released

Post-requisites

1 Follow the procedure from step 7 to step 23 in Replacing the computer base.
2 Replace the rear cover.
3 Replace the battery.
4 Replace the base cover.

Identifier	GUID-BF7F1ECA-BC62-4949-B1BE
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-0F0252BF-439C-46B2-B46B-A4CE9CEB6E2D
Status	Released

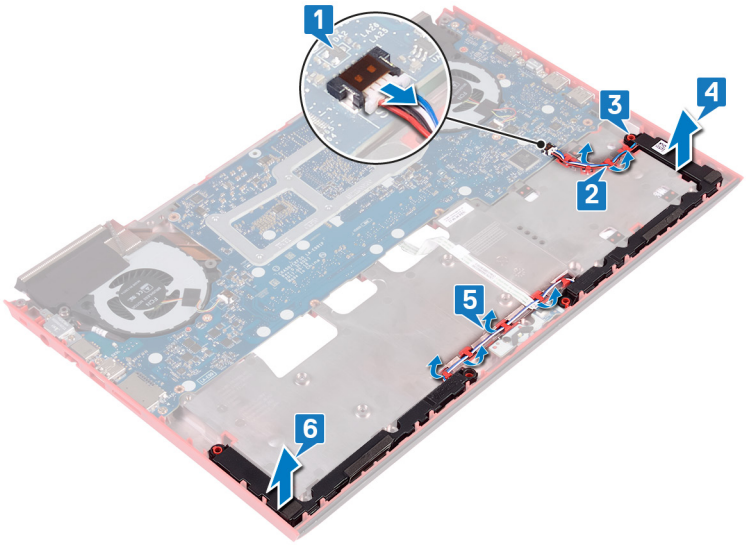
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Follow the procedure from step 1 to step 18 in Removing the computer base.

Identifier	GUID-2340C4BC-E718-4539-AF98-C4FC5AE99B60
Status	Released

Procedure

1 Disconnect the speaker cable from the system board.
2 Note the routing of the speaker cable and remove the speaker cable from the routing guides on the computer base.
3 Note the position of the rubber grommets before lifting the speakers.
4 Lift the right speaker off the computer base.
5 Note the routing of the speaker cable and remove the speaker cable from the routing guides on the computer base.
6 Lift the left speaker off the computer base.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Identifier	GUID-40DC76F7-B3EC-450A-848E-
Status	Released

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.

Topics:

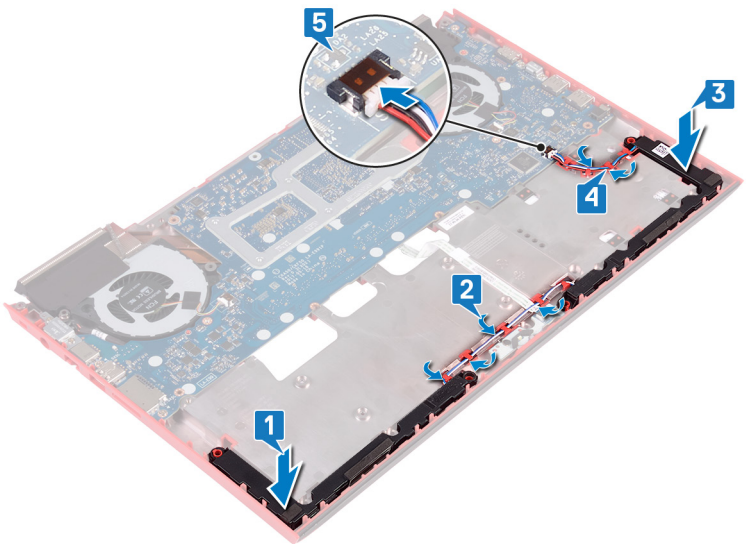
- Procedure
- Post-requisites

Identifier	GUID-E61B61C9-D00C-4C89-9DF8-E375FA7EDFE3
Status	Released

Procedure

NOTE: The rubber grommets may get pushed out while replacing the speaker. Ensure that the rubber grommets are in their position after placing the speaker on the system board.

1 Using the alignment posts, place the left speaker on the computer base.
2 Route the speaker cable through the routing guides on the computer base.
3 Using the alignment posts, place the right speaker on the computer base.
4 Route the speaker cable through the routing guides on the computer base.
5 Connect the speaker cable to the system board.



Identifier	GUID-CCDBD3BB-AD5B-44FF-BC81-3D74308C21F6
Status	Released

Post-requisites

1 Follow the procedure from step 7 to step 23 in Replacing the computer base.
2 Replace the rear cover.
3 Replace the battery.
4 Replace the base cover.

Identifier	GUID-B54497E8-5AD5-4FF9-AD4A
Status	Released

Removing the system board

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

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

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

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

Topics:

- Prerequisites
- Procedure

Identifier	GUID-474ABCF0-A847-4BA0-A872-B5580FC4441E
Status	Released

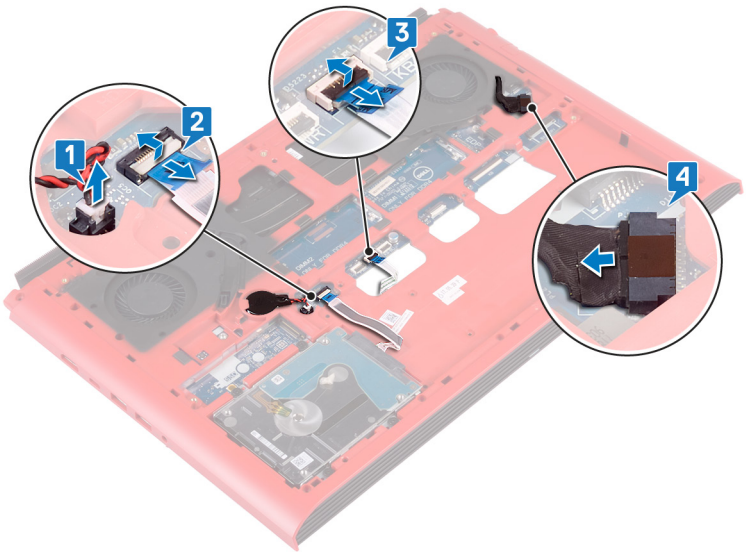
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Follow the procedure from step 1 to step 18 in Removing the computer base.

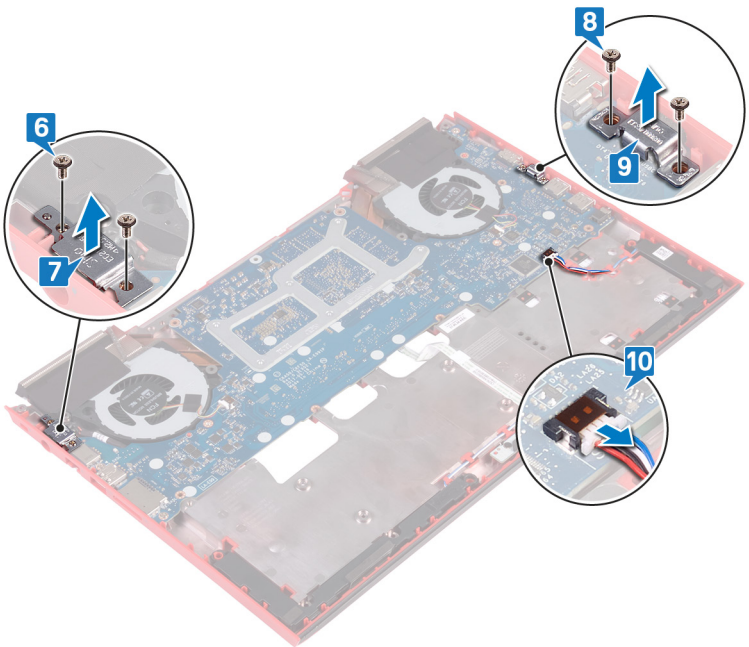
Identifier	GUID-4B1316AF-6347-4241-9EE8-72096DA13BFC
Status	Released

Procedure

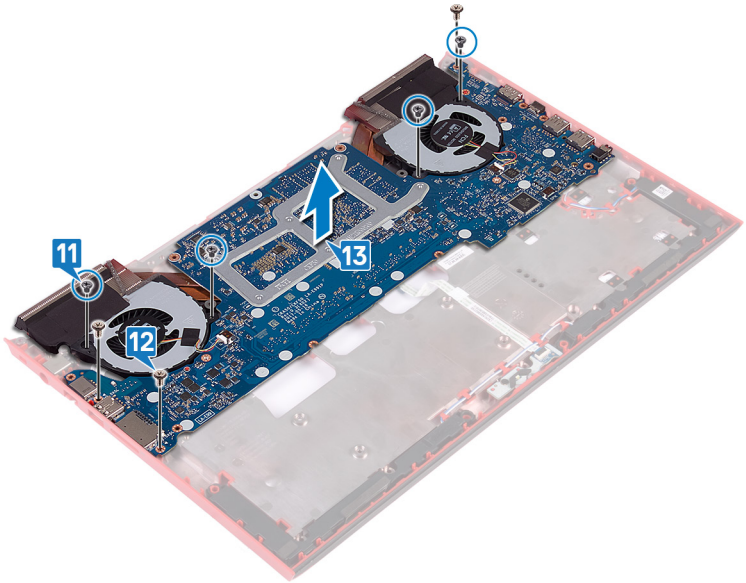
1 Turn the computer base over.
2 Disconnect the coin-cell battery from the system board.
3 Open the latch and disconnect the hard-drive cable from the system board.
4 Open the latch and disconnect the status-light board cable from the system board.
5 Disconnect the power-adapter port cable from the system board.



6 Turn the computer base over.
7 Remove the two screws (M2.5x5) that secure the power-adapter port bracket to the computer base.
8 Lift the power-adapter port bracket off the computer base.
9 Remove the two screws (M2.5x5) that secure the USB Type-C port bracket to the system board.
10 Lift the USB Type-C port bracket off the system board.
11 Disconnect the speaker cable from the system board.

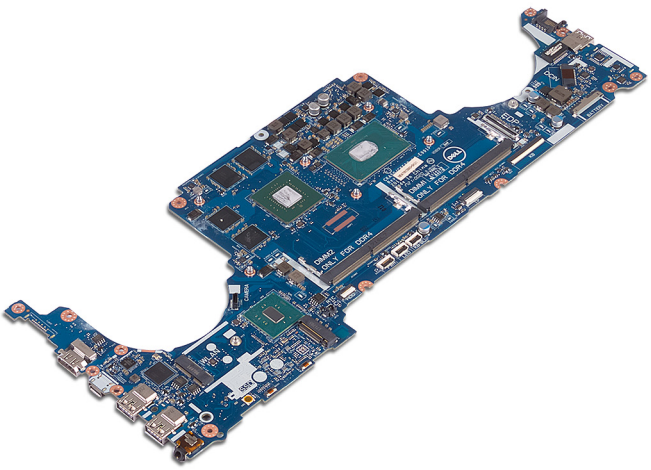


12 Remove the four screws (M2x3) that secure the fans to the system board.
13 Remove the three screws (M2.5x5) that secure the system board to the computer base.
14 Gently release the ports on the system board from the slots on the computer base and lift the system board off the computer base.



15 Turn the system board over.

16 Remove the heat-sink assembly.



Identifier	GUID-67274E98-E2F1-4B7B-A903-
Status	Released

Replacing the system board

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

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

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

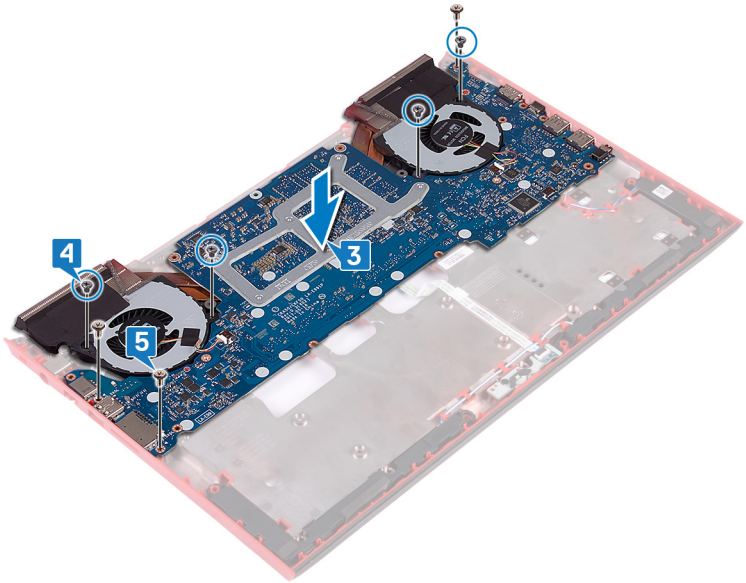
Topics:

- Procedure
- Post-requisites
- Entering the Service Tag in the BIOS setup program

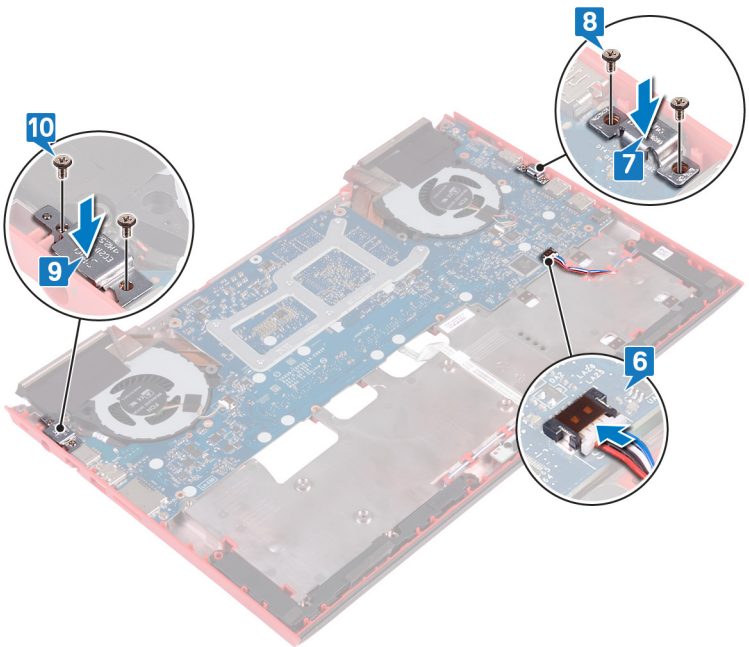
Identifier	GUID-04C80B87-DD3A-41AB-BD11-2C1CFBBE2476
Status	Released

Procedure

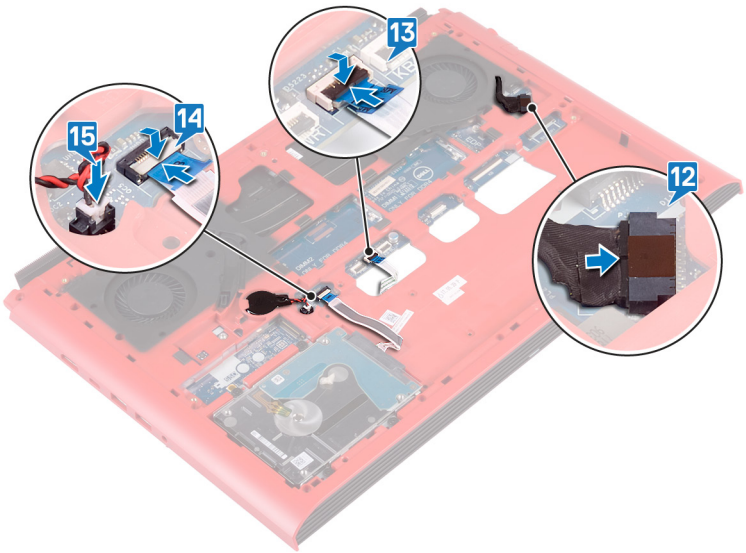
1 Replace the heat-sink assembly.
2 Turn the system board over.
3 Slide the ports on the system board into the slots on the computer base and align the screw holes on the system board with the screw holes on the computer base.
4 Replace the four screws (M2x3) that secure the fans to the system board.
5 Replace the three screws (M2.5x5) that secure the system board to the computer base.



6 Connect the speaker cable to the system board.
7 Align and place the USB Type-C port bracket on the system board.
8 Replace the two screws (M2.5x5) that secure the USB Type-C port bracket to the computer base.
9 Align and place the power-adapter port bracket on the computer base.
10 Replace the two screws (M2.5x5) that secure the power-adapter port bracket to the computer base.



11 Turn the computer base over.
12 Connect the power-adapter port cable to the system board.
13 Slide the status-light board cable into the connector on the system board and close the latch to secure the cable.
14 Slide the hard-drive cable into the connector on the system board and close the latch to secure the cable.
15 Connect the coin-cell battery to the system board.



Identifier	GUID-96D83F1A-F293-4C81-AEC6-0CC1436500E9
Status	Released

Post-requisites

1 Follow the procedure from step 7 to step 23 in Replacing the computer base.
2 Replace the rear cover.
3 Replace the battery.
4 Replace the base cover.

Identifier	GUID-C264FC4F-B5CD-4F08-9183-CB9FC26A5E6A
Status	Released

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.

Identifier	GUID-35D5032D-9652-403C-9A8A-
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-45CF4C7B-02F1-4EDC-8C75-CF06C79451F6
Status	Released

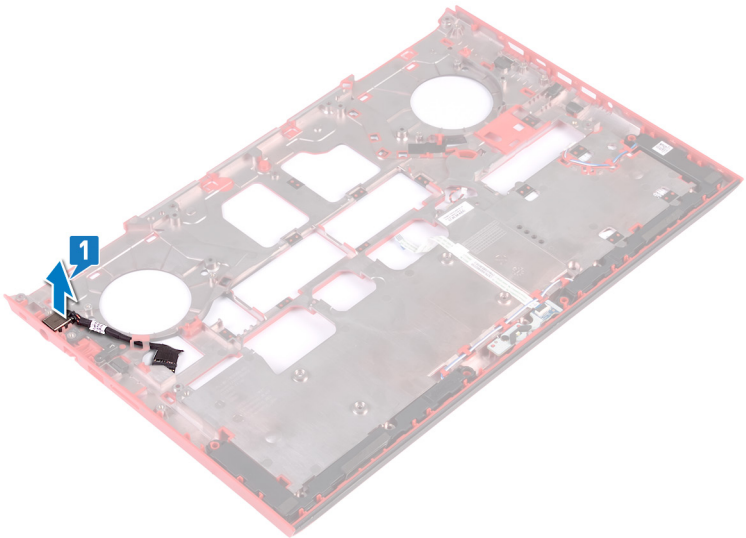
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the solid-state drive.
5 Remove the memory modules.
6 Remove the wireless card.
7 Remove the computer base.
8 Follow the procedure from step 1 to step 14 in Removing the system board.

Identifier	GUID-3667CF1B-F7AD-43BA-AB9A-415596931A63
Status	Released

Procedure

Lift the power-adapter port, along with its cable, off the computer base.


1

Identifier	GUID-A99140DB-7AF3-4218-B305-
Status	Released

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.

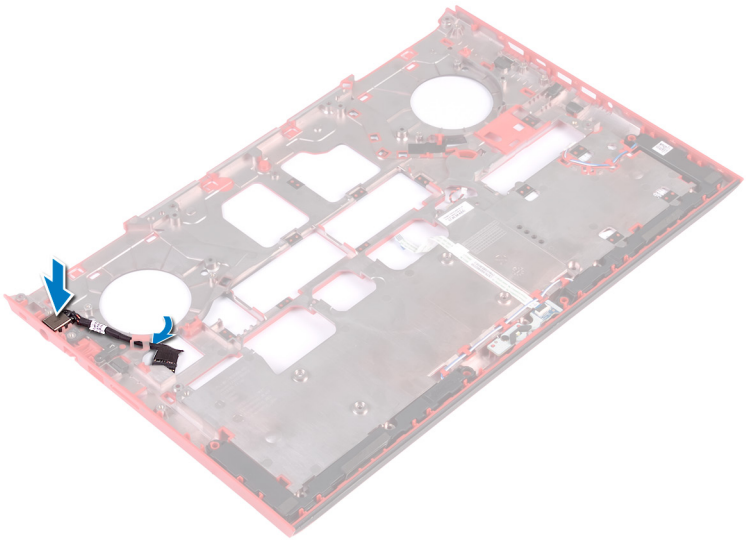
Topics:

- Procedure
- Post-requisites

Identifier	GUID-70707494-B12F-4864-8991-58115B004B57
Status	Released

Procedure

Place the power-adapter port into the slot on the computer base.



Identifier	GUID-5D833D8B-F0B9-409C-92B2-110083696887
Status	Released

Post-requisites

1 Follow the procedure from step 4 to 16 in Replacing the system board.
2 Replace the computer base.
3 Replace the wireless card.
4 Replace the memory modules.
5 Replace the solid-state drive.
6 Replace the rear cover.
7 Replace the battery.
8 Replace the base cover.

Identifier	GUID-A4C65F77-E1D1-4595-B52B-
Status	Released

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.

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-C8DF632E-24DC-49C4-A984-CEA0326D825F
Status	Released

Prerequisites

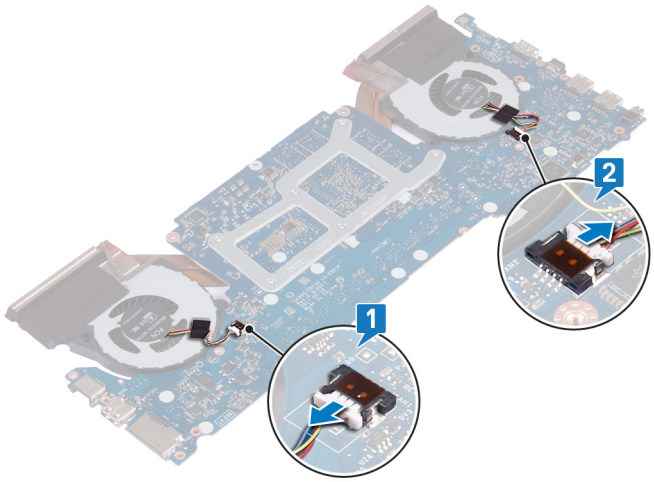
1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Follow the procedure from step 1 to step 18 in Removing the computer base.
5 Follow the procedure from step 1 to step 14 in Removing the system board.

Identifier	GUID-6349B797-F4EA-4D07-A984-576F7CF616FD
Status	Released

Procedure

NOTE: The appearance of the heat-sink assembly on your computer may differ from the image shown in this chapter.

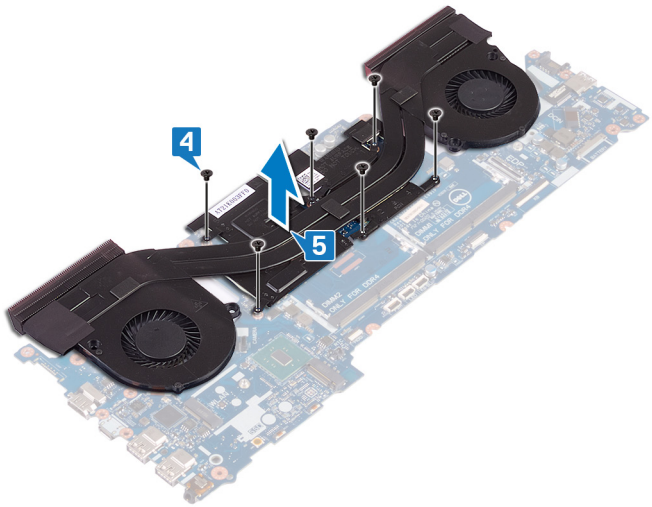
1 Disconnect the left-fan cable from the system board.
2 Disconnect the right-fan cable from the system board.



3 Turn the system board over.

4 In sequential order (indicated on the heat-sink assembly), remove the six screws (M2x3) that secure the heat-sink assembly to the system board.

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



Identifier	GUID-9847FD24-88EC-4F5A-BCCF
Status	Released

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.

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

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

Topics:

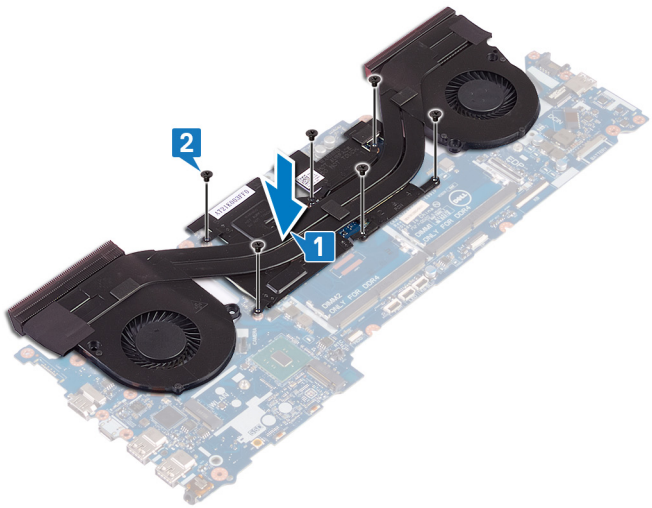
- Procedure
- Post-requisites

Identifier	GUID-1D1C4676-6FA0-429B-BD0C-8444475394C2
Status	Released

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), replace the six screws (M2x3) that secure the heat sink to the system board.



3 Turn the system board over.

Identifier	GUID-E3CCF1C9-A921-488B-8D21-0335C516CC91
Status	Released

Post-requisites

1 Follow the procedure from step 4 to step 16 in Removing the system board.
2 Follow the procedure from step 7 to step 23 in Replacing the computer base.
3 Replace the rear cover.
4 Replace the battery.
5 Replace the base cover.

Identifier	GUID-A35BD2D5-B3B3-4708-AF1C
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-AAACBF2D-0730-4C18-88CA-E0CA01223D46
Status	Released

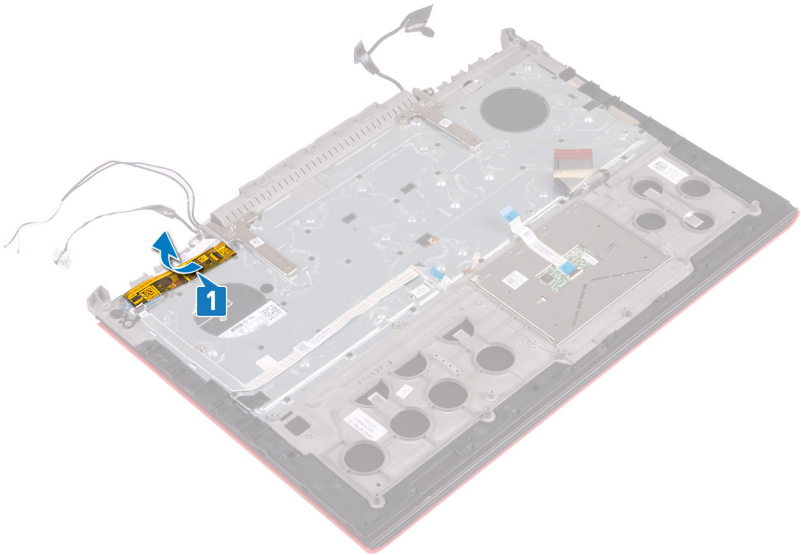
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the computer base.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.

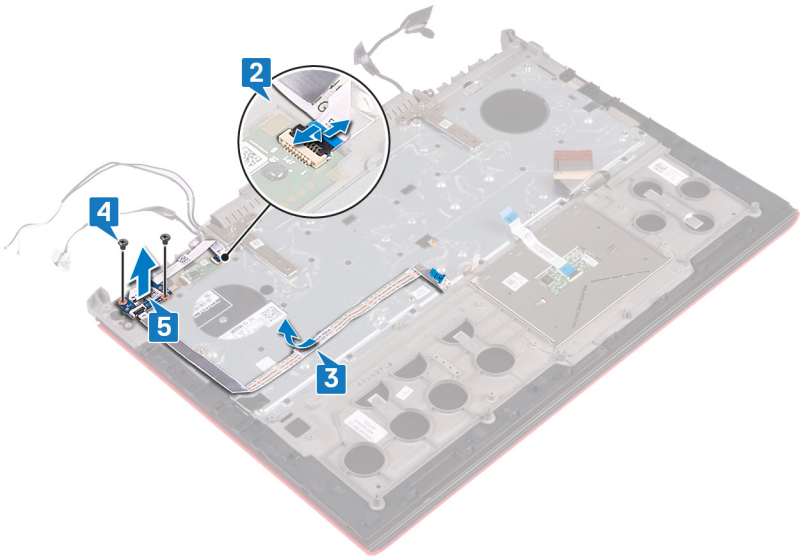
Identifier	GUID-545757E4-74BA-416C-BCE2-AC83F5FEC16F
Status	Released

Procedure

1 Close the display and turn the palm-rest assembly over.
2 Peel the tape that secures the fingerprint-reader board and the power-button board to the palm-rest assembly.



3 Open the latch and disconnect the fingerprint-reader board cable from the fingerprint-reader board.
4 Peel the power-button board cable from the palm-rest assembly.
5 Remove the two screws (M2x3) that secure the power-button board to the palm-rest assembly.
6 Lift the power-button board, along with the cable, off the palm-rest assembly.



Identifier	GUID-FBA68EE4-1E13-4F28-9B84-
Status	Released

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.

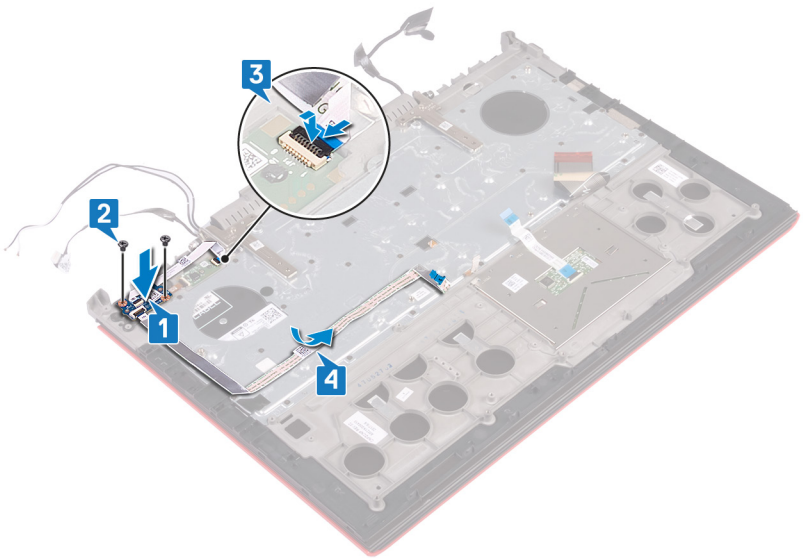
Topics:

- Procedure
- Post-requisites

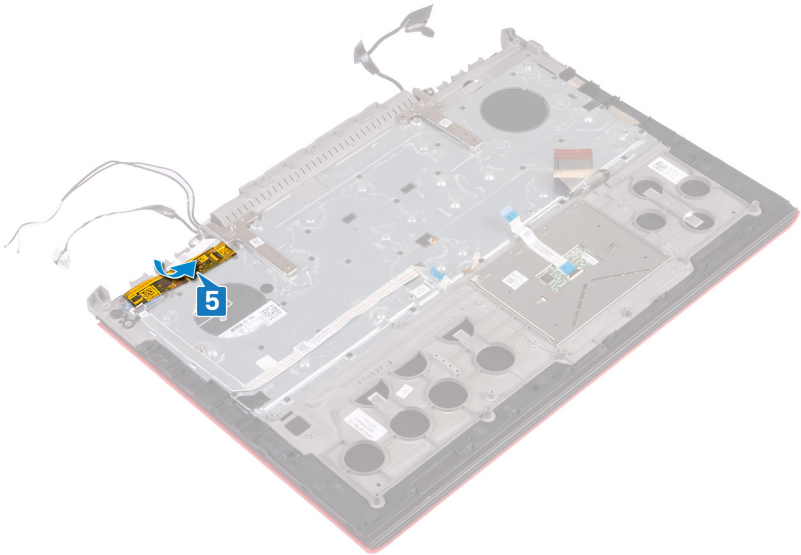
Identifier	GUID-A96E571E-8CCC-4AD0-ADD4-3C7F777D72CF
Status	Released

Procedure

1 Align the screw holes on the power-button board with the screw holes on the palm-rest assembly.
2 Replace the two screws (M2x3) that secure the power-button board to the palm-rest assembly.
3 Slide the fingerprint-reader board cable into the connector on the fingerprint-reader board and close the latch to secure the cable.
4 Adhere the power-button board cable to the palm-rest assembly.



5 Adhere the tape that secures the fingerprint-reader board and the power-button board to the palm-rest assembly.



Identifier	GUID-D5E18F8F-154B-48D6-BACB-DA0A927BB040
Status	Released

Post-requisites

1 Follow the procedure from step 8 to step 23 in Replacing the computer base.
2 Replace the rear cover.
3 Replace the battery.
4 Replace the base cover.

Identifier	GUID-CE1E29E9-9EBF-466B-9701-
Status	Released

Removing the fingerprint-reader 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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-817897E9-7FEA-492E-B2A5-8820FC8AA173
Status	Released

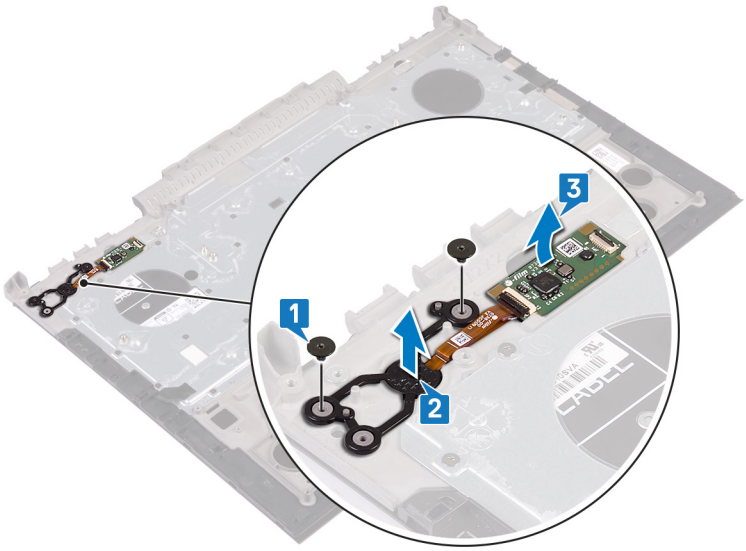
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Follow the procedure from step 1 to step 17 in Removing the computer base.
5 Remove the power-button board.

Identifier	GUID-4CAA396D-59B2-4446-978F-27C3C41B6D05
Status	Released

Procedure

1 Remove the two screws (M2x2) that secure the fingerprint-reader board bracket to the palm-rest assembly.
2 Lift the fingerprint-reader board bracket off the palm-rest assembly.
3 Lift the fingerprint-reader board off the palm-rest assembly.


3
1
2

Identifier	GUID-585617D4-C4EE-4C23-9992-2
Status	Released

Replacing the fingerprint-reader 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.

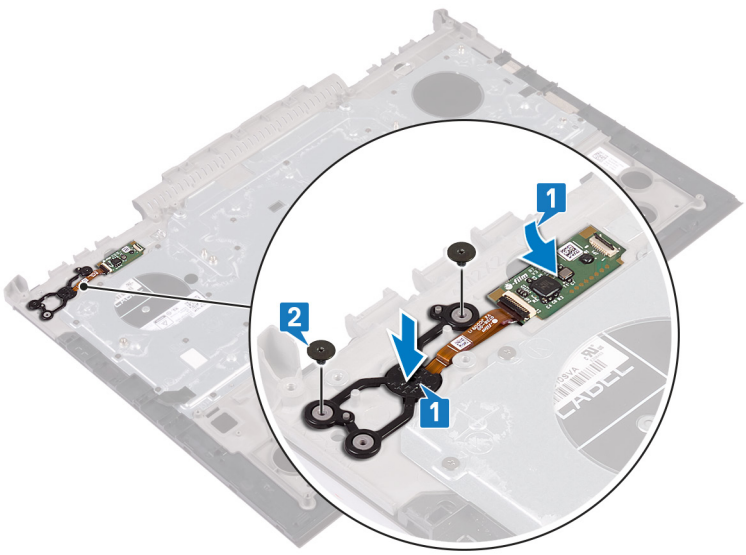
Topics:

- Procedure
- Post-requisites

Identifier	GUID-B3F118B7-6C49-414D-AFDB-B92E68DD8509
Status	Released

Procedure

1 Align the fingerprint-reader board and the fingerprint-reader board bracket on the palm-rest assembly.
2 Replace the two screws (M2x2) that secure the fingerprint-reader board to the palm-rest assembly.



Identifier	GUID-274EA7BD-A596-4A43-A449-93F5439D5F9A
Status	Released

Post-requisites

1 Replace the power-button board.
2 Follow the procedure from step 7 to step 23 in Replacing the computer base.
3 Replace the rear cover.
4 Replace the battery.
5 Replace the base cover.

Identifier	GUID-8D2AE471-594B-46FC-808B-
Status	Released

Removing the touchpad

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

Topics:

- Prerequisites
- Procedure

Identifier	GUID-55B7987F-FEF6-4F86-9CED-5F9D2AB25053
Status	Released

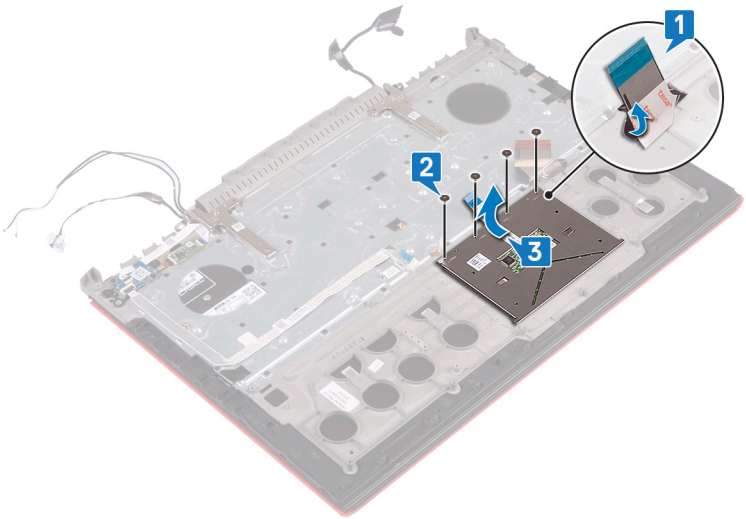
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Follow the procedure from step 1 to step 17 in Removing the computer base.

Identifier	GUID-FC679185-73A6-4BF1-809C-949DAA52968F
Status	Released

Procedure

1 Peel the keyboard cable off the touchpad.
2 Remove the four screws (M2x2) that secure the touchpad to the palm-rest assembly.
3 Slide and lift the touchpad, along with the cable, at an angle off the palm-rest assembly.


1
2
3

Identifier	GUID-B55423C5-03BB-46A2-9B5F-
Status	Released

Replacing the touchpad

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

Topics:

- Procedure
- Post-requisites

Identifier	GUID-8EF49062-014A-4FA3-ABC4-1BDA5583C1C8
Status	Released

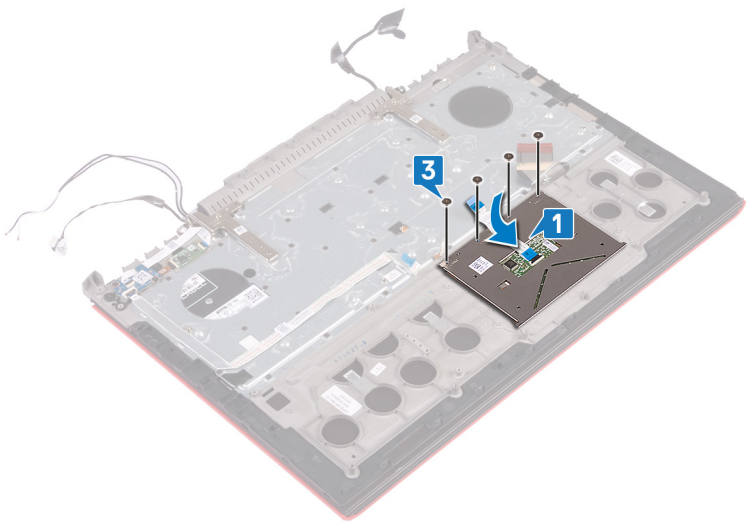
Procedure

1 Slide the touchpad in place on the palm-rest assembly.

NOTE: Ensure that the touchpad is aligned with the guides on the palm-rest assembly, and the gap on either sides of the touchpad is equal.

2 Align the screw holes on the touchpad with the screw holes on the palm-rest assembly.

3 Replace the four screws (M2x2) that secure the touchpad to the palm-rest assembly.



Identifier	GUID-A7D830F1-481C-49DE-8A55-F296BD105CE5
Status	Released

Post-requisites

1 Follow the procedure from step 7 to step 23 in Replacing the computer base.
2 Replace the rear cover.
3 Replace the battery.
4 Replace the base cover.

Identifier	GUID-AB1F153B-621B-42FC-89BE
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-65A1E669-C1E8-4E1A-B116-B359BAAAB746
Status	Released

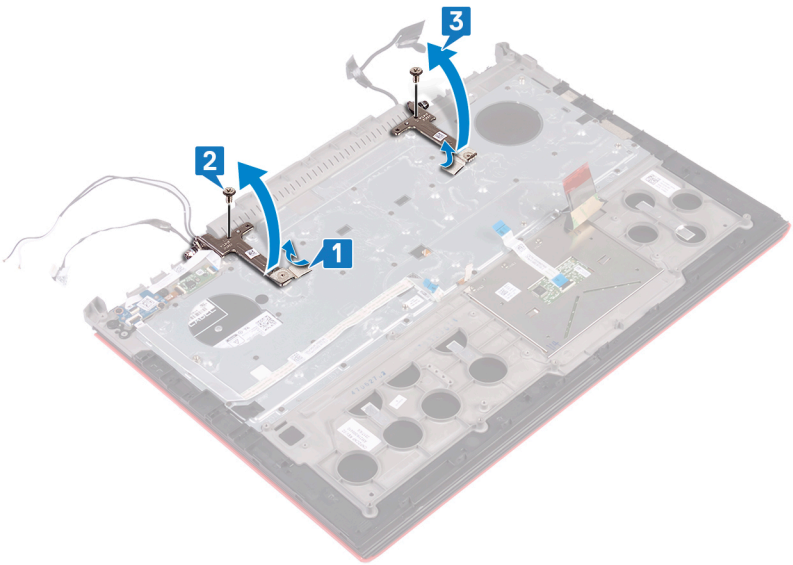
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.

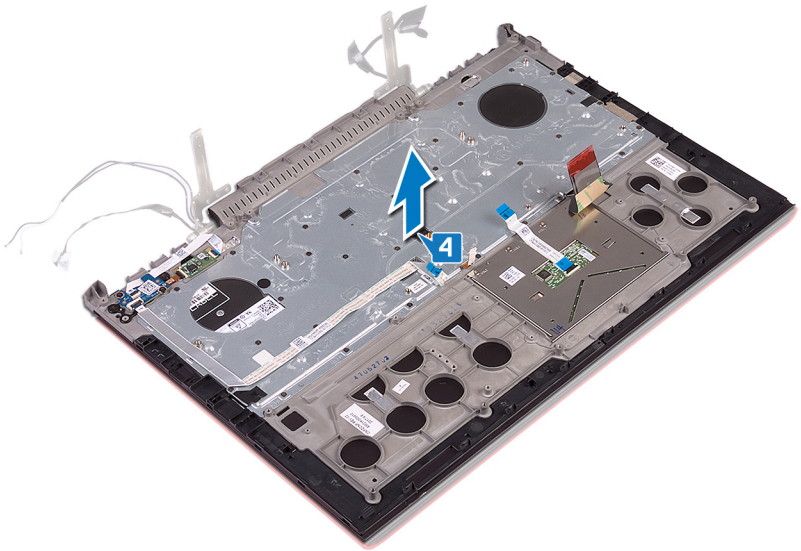
Identifier	GUID-1CD783E6-3A2B-4C95-8441-6547373AAD94
Status	Released

Procedure

1 Peel off the tapes that secure the display hinges to the palm-rest assembly.
2 Remove the two screws (M2.5x5) that secure the display hinges to the palm-rest assembly.
3 Open the display hinges at an angle of 90 degrees.



4 Lift the palm-rest assembly off the display assembly.



5 After performing the above steps, you will be left with the display assembly.

Identifier	GUID-2DF70EB1-9D26-4051-8B7C-
Status	Released

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.

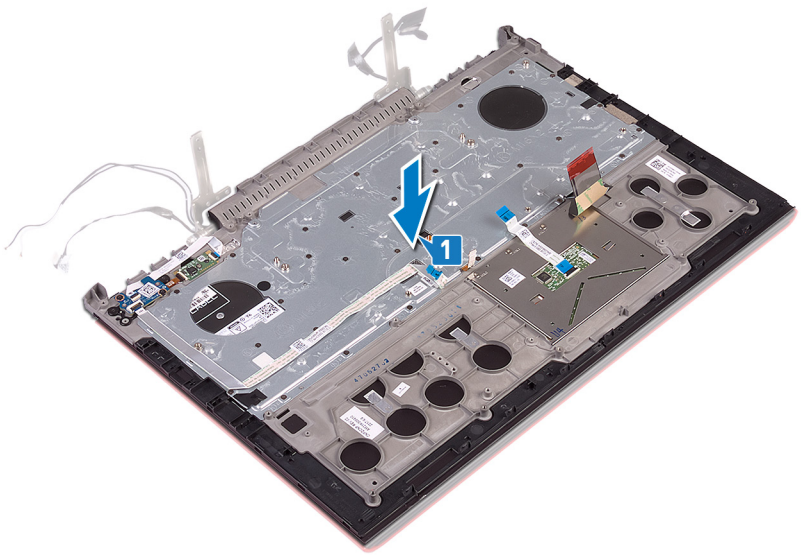
Topics:

- Procedure
- Post-requisites

Identifier	GUID-B8C3FA28-CBD5-4B17-96A1-697156AE60C5
Status	Released

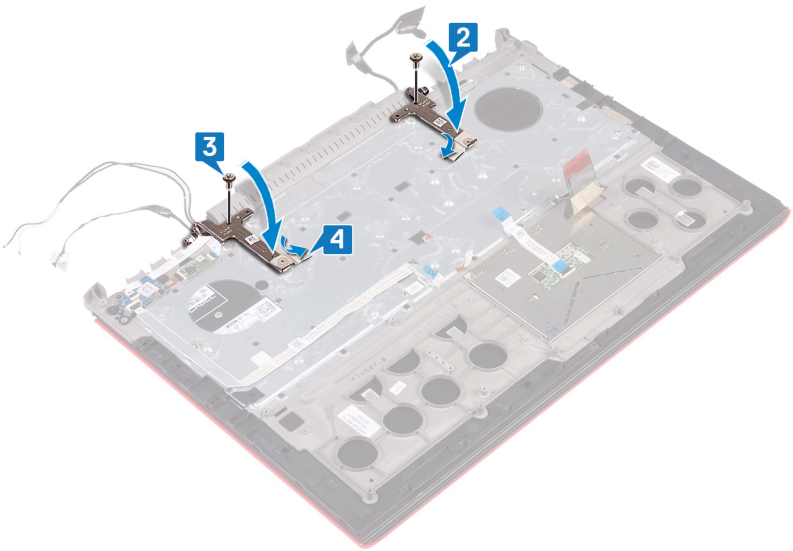
Procedure

1 Place the palm-rest assembly on the display assembly.



2 Using the alignment posts, close the display hinges.

3 Replace the two screws (M2.5x5) that secure the display hinges to the palm-rest assembly.



Identifier	GUID-B57184D6-DCDB-4B5B-9EE7-8BEBDA6B1C2E
Status	Released

Post-requisites

1 Follow the procedure from step 7 to step 23 in Replacing the computer base.
2 Replace the wireless card.
3 Replace the rear cover.
4 Replace the battery.
5 Replace the base cover.

Identifier	GUID-5AE964CF-7958-4D31-BBA8
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-F9FC7732-D05F-4D3F-9B53-FA01FD4359D0
Status	Released

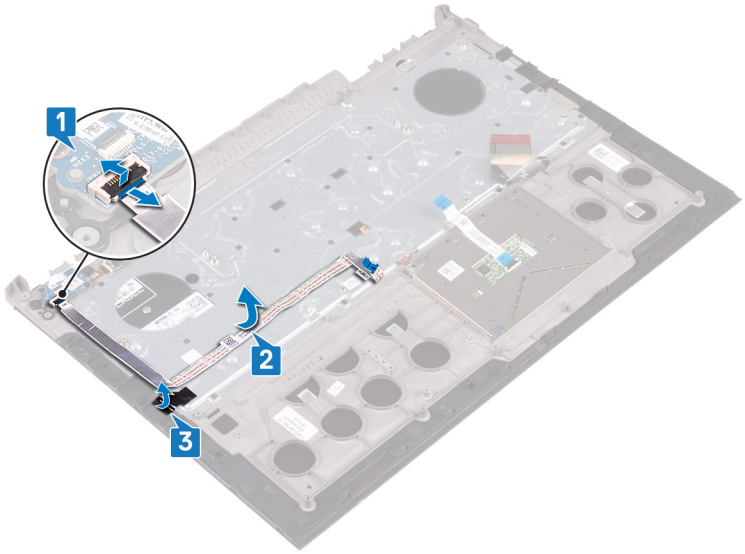
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.

Identifier	GUID-01C6F29F-4800-4BDE-A41A-A6ED59276CB4
Status	Released

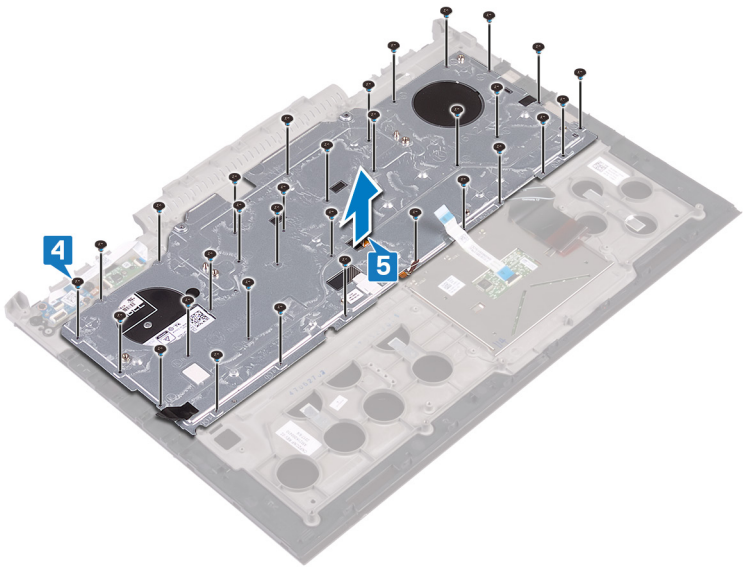
Procedure

1 Open the latch and disconnect the power-adapter port cable off the palm-rest assembly.
2 Peel the power-adapter port cable off the palm-rest assembly.
3 Peel the tape that secures the keyboard bracket to the palm-rest assembly.

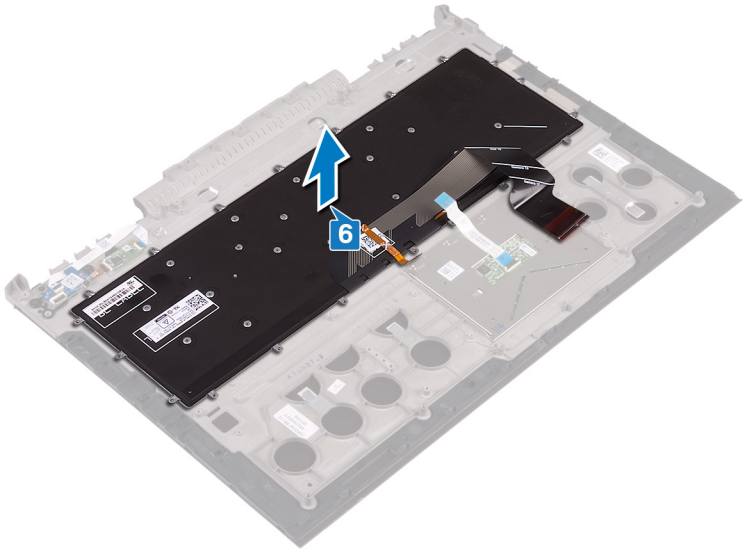


4 Remove the 30 screws (M1.6x2.2) that secure the keyboard bracket to the palm-rest assembly.

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



6 Lift the keyboard, along with the cables, off the palm-rest assembly.


6

Identifier	GUID-18204C76-DF75-4DB8-BD6F-
Status	Released

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.

Topics:

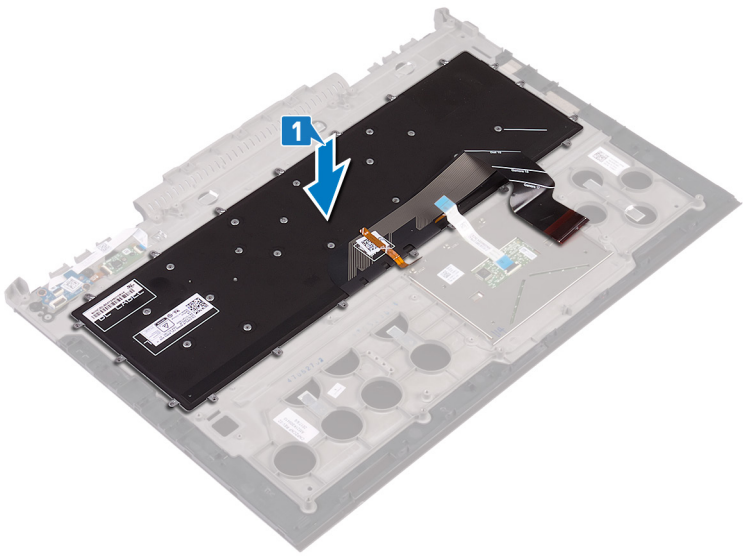
- Procedure
- Post-requisites
- Folding the keyboard cables

Identifier	GUID-A44E7912-0E7A-4634-82EE-48281F6109EB
Status	Released

Procedure

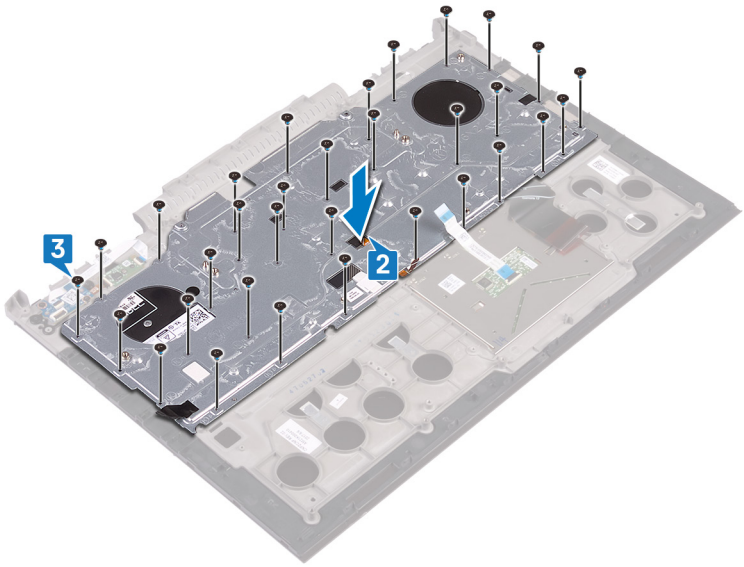
NOTE: If you are installing a new keyboard, fold the cables the same way they are folded on the old keyboard. For more information, see "Folding the Keyboard Cables".

1 Align the keyboard on the palm-rest assembly.

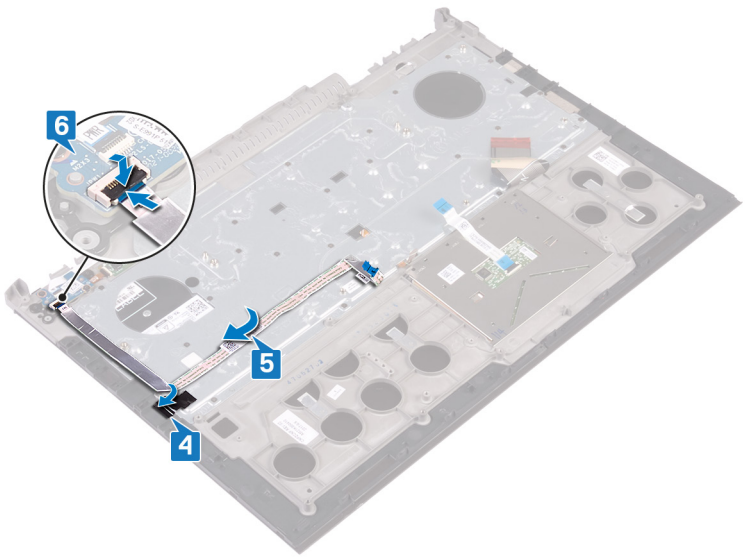


2 Align the screw holes on the keyboard bracket with the screw holes on the palm-rest assembly.

3 Replace the 30 screws (M1.6x2.2) that secure the keyboard bracket to the palm-rest assembly.



4 Adhere the tape that secures the keyboard bracket to the palm-rest assembly.
5 Adhere the power-adapter port cable to the palm-rest assembly.
6 Connect the power-adapter port cable to the palm-rest assembly and close the latch to secure the cable.



Identifier	GUID-B89119DF-9F78-44A0-B441-900F4847476D
Status	Released

Post-requisites

1 Replace the display assembly.
2 Follow the procedure from step 7 to step 23 in Replacing the computer base.
3 Replace the wireless card.
4 Replace the rear cover.
5 Replace the battery.
6 Replace the base cover.

Identifier	GUID-70831E94-B04F-4957-B95C-9FCAB0958EC1
Status	Released

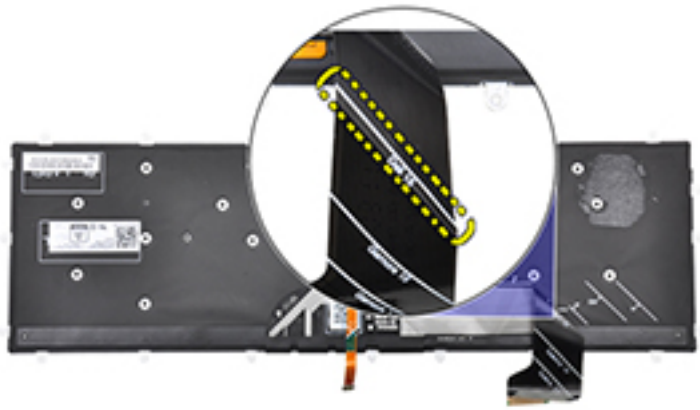
Folding the keyboard cables

CAUTION: Do not apply excess pressure while folding the cables.

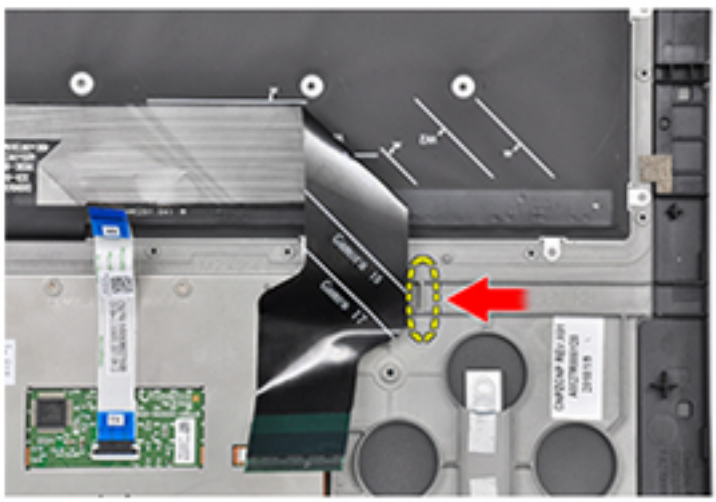
The cables on the keyboard are not folded when you receive a replacement keyboard. Follow these instructions to fold the cables on the replacement keyboard the same way they are folded on the old keyboard.

NOTE: Keyboard-backlight cable is present only on a backlit-keyboard.

1 Note the position to fold the new keyboard cable.



2 Gently fold the keyboard cable with the end aligned at the fold line as shown in the image. Once folded correctly, the right edge of the keyboard cable should be lined up next to the line indicated on the palm-rest assembly.



Identifier	GUID-DB825F91-AB3C-47B9-A43E
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-14F93811-040B-4B39-896C-A3FA85F4DD78
Status	Released

Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.
7 Remove the power-button board.
8 Remove the fingerprint-reader board.
9 Remove the touchpad.
10 Remove the keyboard.

Identifier	GUID-D9E4F9D9-800A-471F-B720-6BFD6E56D9D6
Status	Released

Procedure

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

Identifier	GUID-F8EF3836-195A-4CD7-ADEA
Status	Released

42

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.

Topics:

- Procedure
- Post-requisites

Identifier	GUID-D835F8E7-2787-4736-AE23-0D43FE103C0B
Status	Released

Procedure

Place the palm rest on a clean and flat surface.

Identifier	GUID-D196658F-DD5F-49F4-B5B8-74AF9966F10B
Status	Released

Post-requisites

1 Replace the keyboard.
2 Replace the touchpad.
3 Replace the fingerprint-reader board.
4 Replace the power-button board.
5 Replace the display assembly.
6 Follow the procedure from step 7 to step 23 in Replacing the computer base.
7 Replace the wireless card.
8 Replace the rear cover.
9 Replace the battery.
10 Replace the base cover.

Identifier	GUID-5C27B5F7-0EC4-42CD-AB68
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-F9309216-4990-435A-AE8A-E2165D25F887
Status	Released

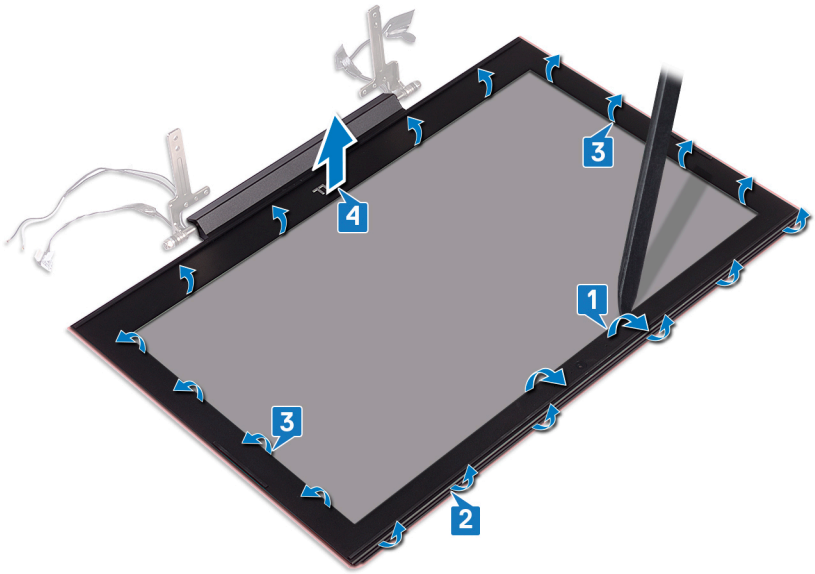
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.

Identifier	GUID-7E4B3E9B-4588-4527-A092-402B37EC0D7A
Status	Released

Procedure

1 Using your fingertips, gently pry up the inside edges of the display bezel.
2 Using a plastic scribe, gently pry up the outside corners of the display bezel.
3 Carefully pry the display bezel off the display assembly.
4 Lift the display bezel off the display assembly.


4
3
1
3
2

Identifier	GUID-619F529E-294B-4F0D-BB9D-
Status	Released

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.

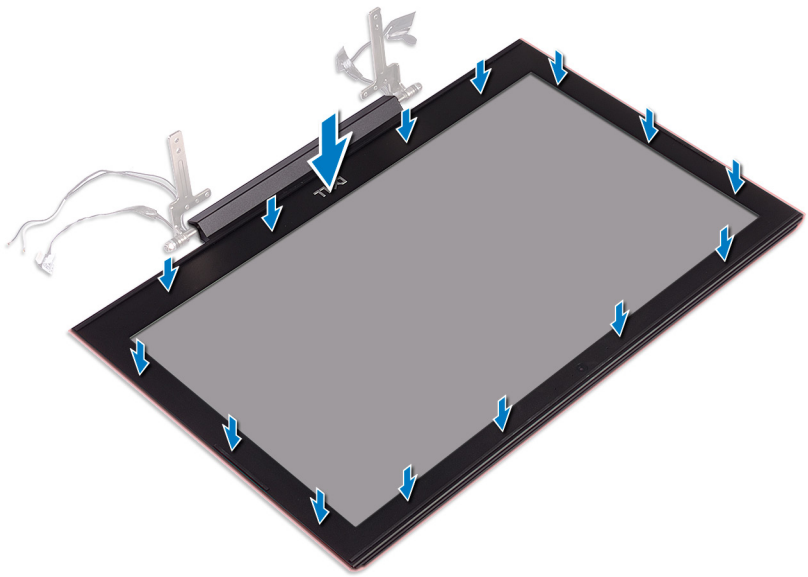
Topics:

- Procedure
- Post-requisites

Identifier	GUID-8E7A7BBD-4AAE-4BE0-8DB4-18A1A84AF8E7
Status	Released

Procedure

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



Identifier	GUID-EC6F02DF-A61E-455B-B2ED-72C08CC3EC5D
Status	Released

Post-requisites

1 Replace the display assembly.
2 Follow the procedure from step 7 to step 23 in Replacing the computer base.
3 Replace the wireless card.
4 Replace the rear cover.
5 Replace the battery.
6 Replace the base cover.

Identifier	GUID-6C4E9746-B780-409D-B703-[illegible]
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-A37A0CB9-04B3-4581-856B-0D33BF3AD73A
Status	Released

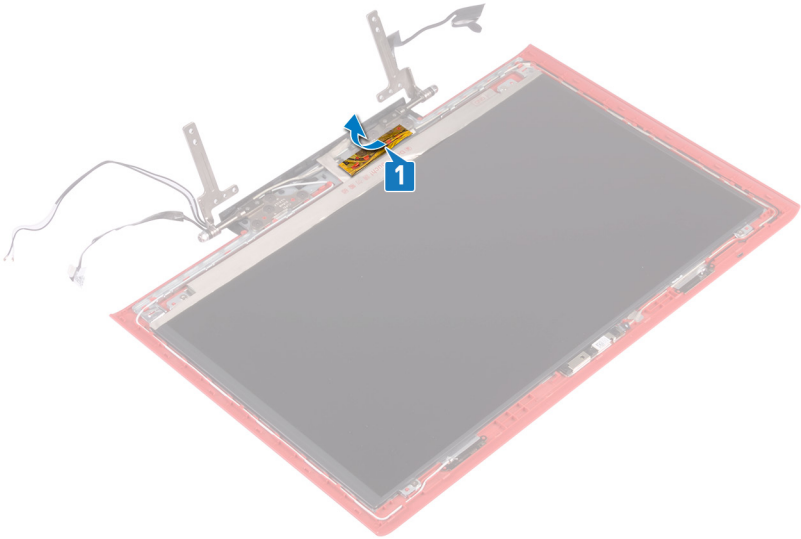
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.
7 Remove the display bezel.

Identifier	GUID-C4D96AFB-7B2D-4781-8163-0E6A43767F09
Status	Released

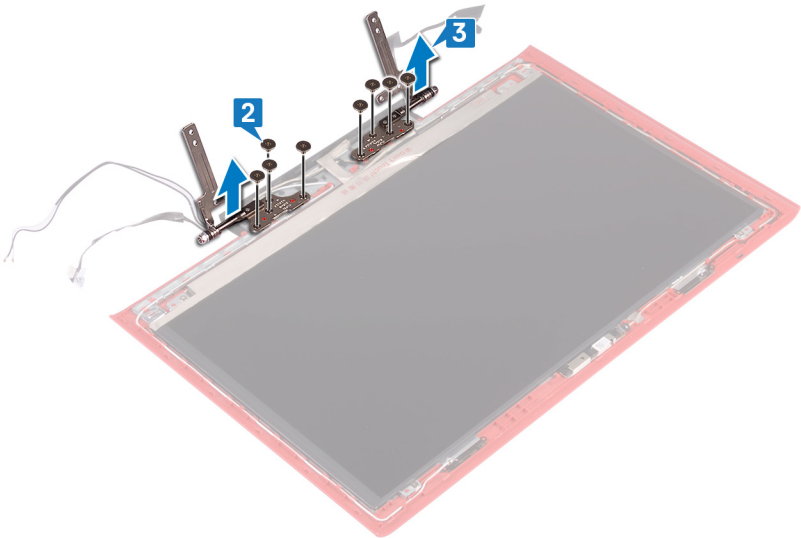
Procedure

1 Peel the tape that secures the display hinge to the display back-cover.



2 Remove the eight screws (M2.5x2.5) that secure the display hinges to the display back-cover.

3 Lift the display hinges off the display back-cover.



Identifier	GUID-E3D5A4DB-BAB5-4F6F-B7B
Status	Released

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.

Topics:

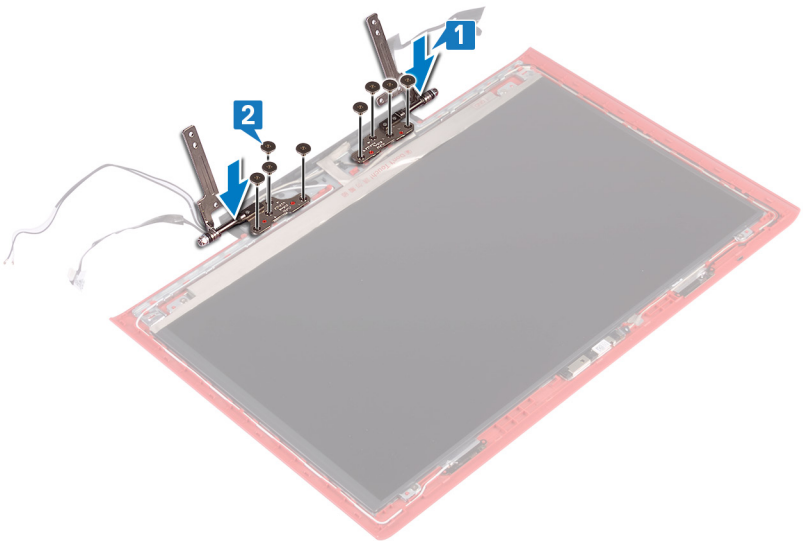
- Procedure
- Post-requisites

Identifier	GUID-D2020FAE-4B5F-4205-9CB2-18AC0A89B9F7
Status	Released

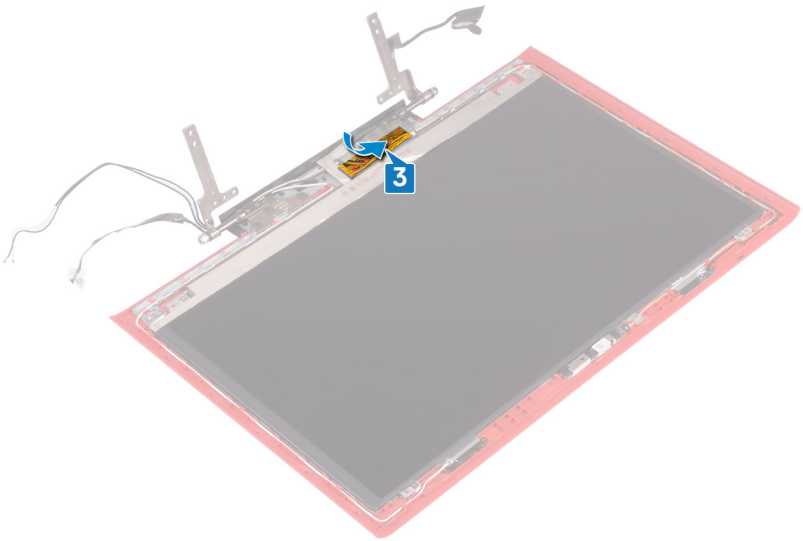
Procedure

1 Align the screw holes on the display hinges with the screw holes on the display back-cover.

2 Replace the eight screws (M2.5x2.5) that secure the display hinges to the display back-cover.



3 Adhere the tape that secures the display hinge to the display back-cover.



Identifier	GUID-BDB098BE-F6A4-4274-ABB1-8B6E1BAAB862
Status	Released

Post-requisites

1 Replace the display bezel.
2 Replace the display assembly.
3 Follow the procedure from step 7 to step 23 in Replacing the computer base.
4 Replace the wireless card.
5 Replace the rear cover.
6 Replace the battery.
7 Replace the base cover.

Identifier	GUID-7D2CEA1B-1FC0-4606-86EB
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-164C13FB-372E-469C-8F50-D58F5BFB9944
Status	Released

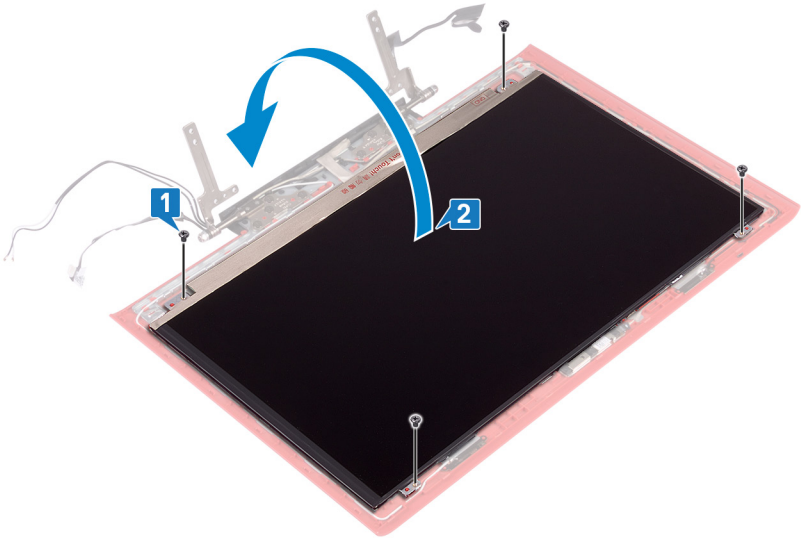
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.
7 Remove the display bezel.

Identifier	GUID-38DAD597-D65D-4A71-BB3F-CC6666FBBD5F
Status	Released

Procedure

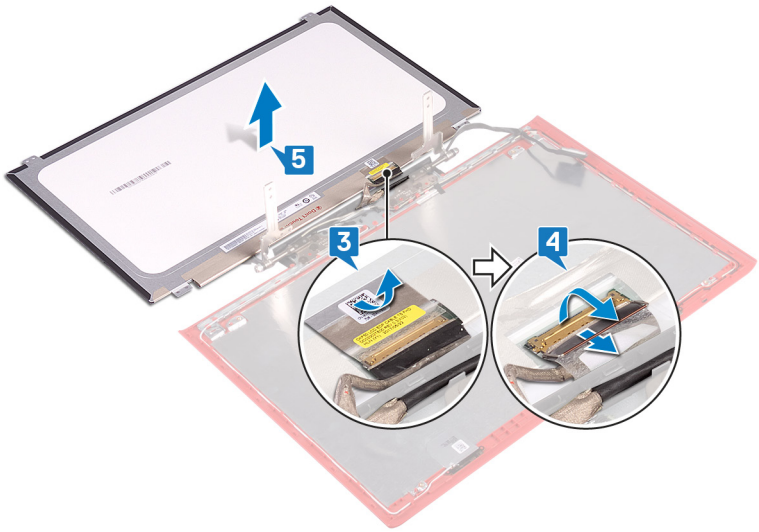
1 Remove the four screws (M2x2.5) that secure the display panel to the display back-cover.
2 Gently lift the display panel and turn it over.



3 Peel off 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 away from the display back-cover.



Identifier	GUID-6FD32244-34F4-4843-983D-E
Status	Released

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.

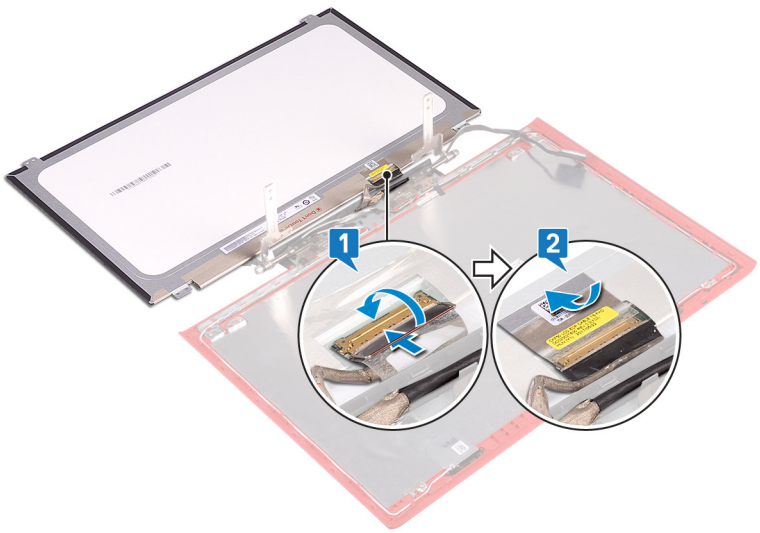
Topics:

- Procedure
- Post-requisites

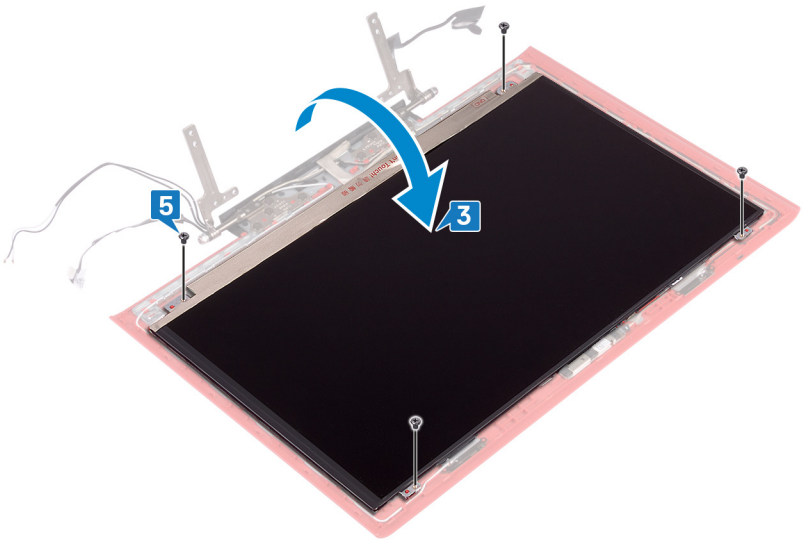
Identifier	GUID-349273A7-D57D-4CCE-9A9D-E31C7FD15092
Status	Released

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.
4 Align the screw holes on the display panel with the screw holes on the display back-cover.
5 Replace the four screws (M2x2.5) that secure the display panel to the display back-cover.



Identifier	GUID-A1378A21-3653-4DDB-868F-4B89312A2ADC
Status	Released

Post-requisites

1 Replace the display bezel.
2 Replace the display assembly.
3 Follow the procedure from step 7 to step 23 in Replacing the computer base.
4 Replace the wireless card.
5 Replace the rear cover.
6 Replace the battery.
7 Replace the base cover.

Identifier	GUID-166DA787-661F-4E60-8975-5
Status	Released

Removing the display 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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-CA56EBCC-FF8B-4A2C-9407-6D2D8B9DB988
Status	Released

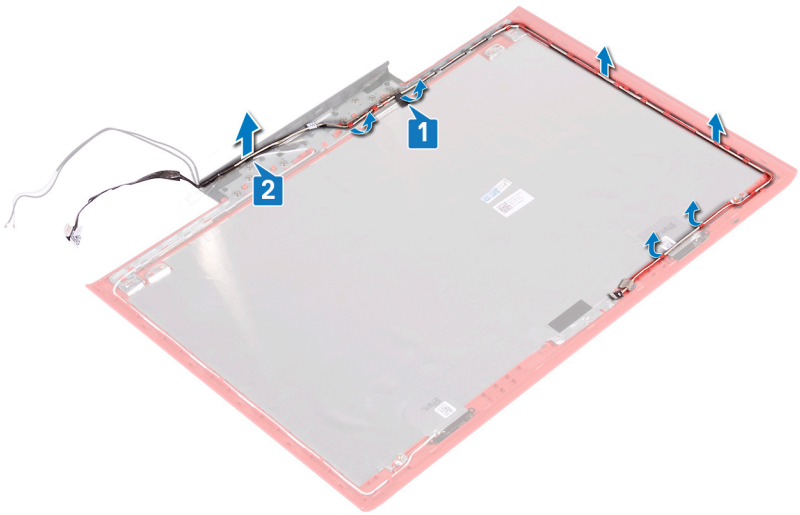
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.
7 Remove the display bezel.
8 Remove the display panel.

Identifier	GUID-CAEDC22D-C836-495D-BDFB-5D1C8ADB3E4E
Status	Released

Procedure

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


1
2

Identifier	GUID-57172914-AB24-4DCE-BD70-
Status	Released

Replacing the display 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.

Topics:

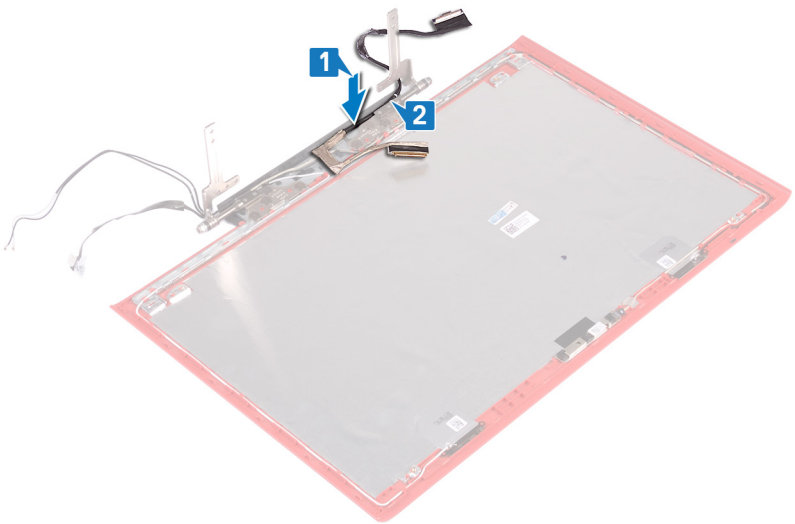
- Procedure
- Post-requisites

Identifier	GUID-A222206B-E1B8-4D0B-8FF5-5E43F99FA081
Status	Released

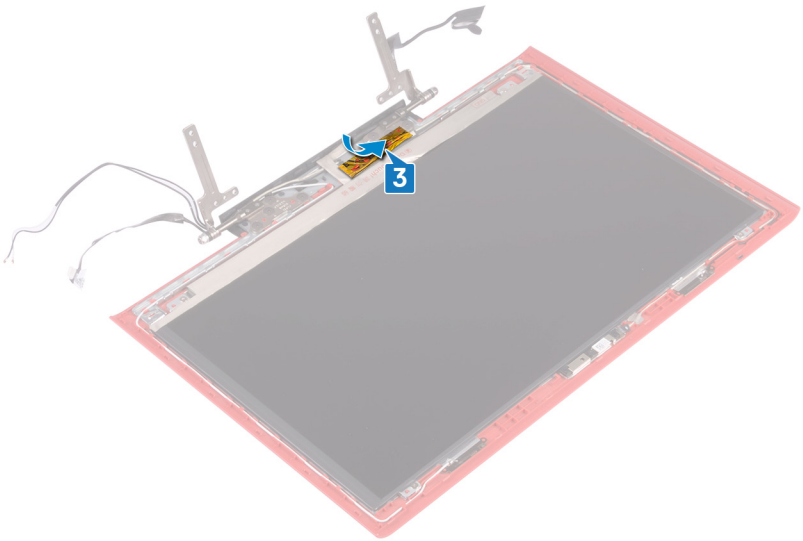
Procedure

1 Align the display cable on the display back-cover and antenna assembly.

2 Route the display cable through the routing guides on the display back-cover and antenna assembly.



3 Adhere the tape that secures the display cable to the display back-cover and antenna assembly.



Identifier	GUID-3046F64B-F6F2-4D52-A191-2EFFC979F0A8
Status	Released

Post-requisites

1 Replace the display panel.
2 Replace the display bezel.
3 Replace the display assembly.
4 Follow the procedure from step 7 to step 23 in Replacing the computer base.
5 Replace the wireless card.
6 Replace the rear cover.
7 Replace the battery.
8 Replace the base cover.

Identifier	GUID-1FB16E7C-AF0C-4FA0-8736-
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-64703457-40AB-43B9-9678-83366AABEE76
Status	Released

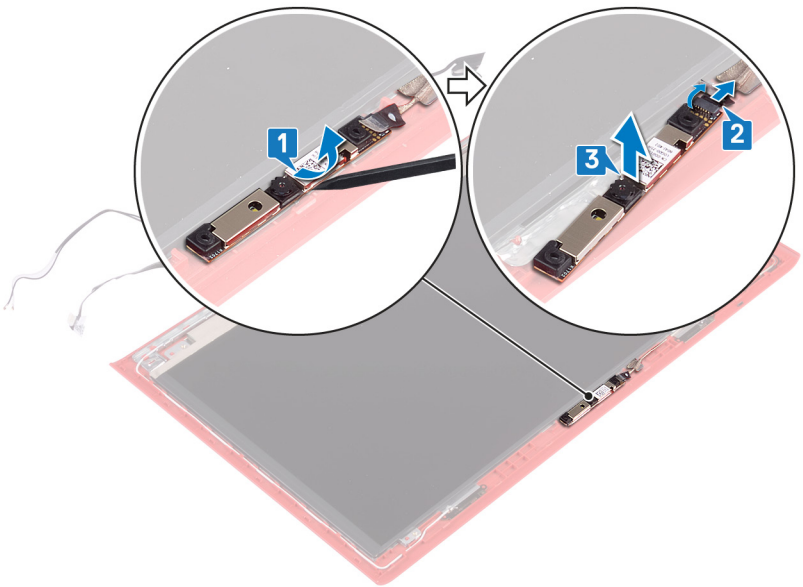
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the rear cover.
4 Remove the wireless card.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.
7 Remove the display bezel.
8 Remove the display panel.

Identifier	GUID-C1B5E36C-E043-4C2A-BF1A-EF6AADF3E09E
Status	Released

Procedure

1 Using a plastic scribe, gently pry the camera from the display back-cover and antenna assembly.
2 Open the latch and disconnect the camera cable from the camera.
3 Peel off the camera from the display back-cover and antenna assembly.


1
2
3

Identifier	GUID-690FF12D-2581-4326-8270-C
Status	Released

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.

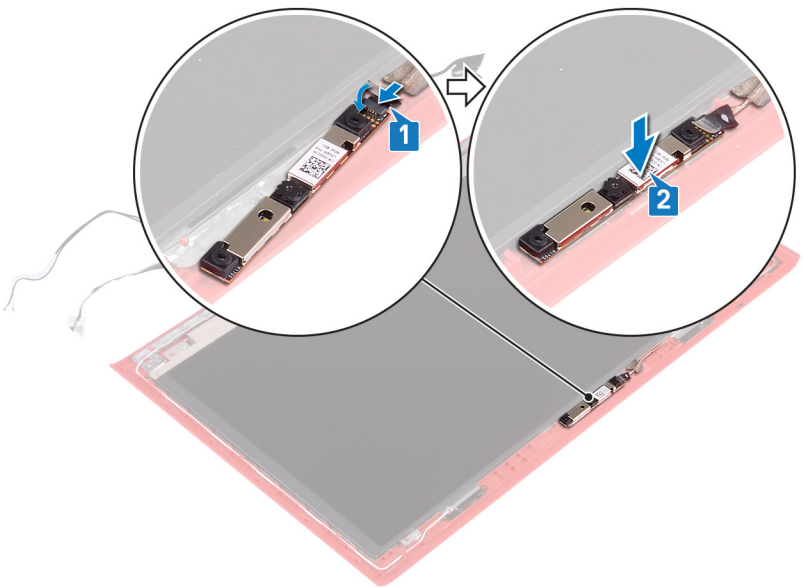
Topics:

- Procedure
- Post-requisites

Identifier	GUID-EFC9B778-1B93-43E1-B91A-3FB32936E076
Status	Released

Procedure

1 Align the camera with the alignment posts on the display back-cover and antenna assembly and adhere the camera in place.
2 Connect the camera cable to the camera and close the latch to secure the cable.



Identifier	GUID-26901F3A-583F-43CF-A791-4F6B49B5360E
Status	Released

Post-requisites

1 Replace the display panel.
2 Replace the display bezel.
3 Replace the display assembly.
4 Follow the procedure from step 7 to step 23 in Replacing the computer base.
5 Replace the wireless card.
6 Replace the rear cover.
7 Replace the battery.
8 Replace the base cover.

Identifier	GUID-2850CA15-9CEF-415A-ADAA
Status	Released

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.

Topics:

- Prerequisites
- Procedure

Identifier	GUID-AE6E3E68-9BF6-4AE0-8DA8-CE81BA83EF95
Status	Released

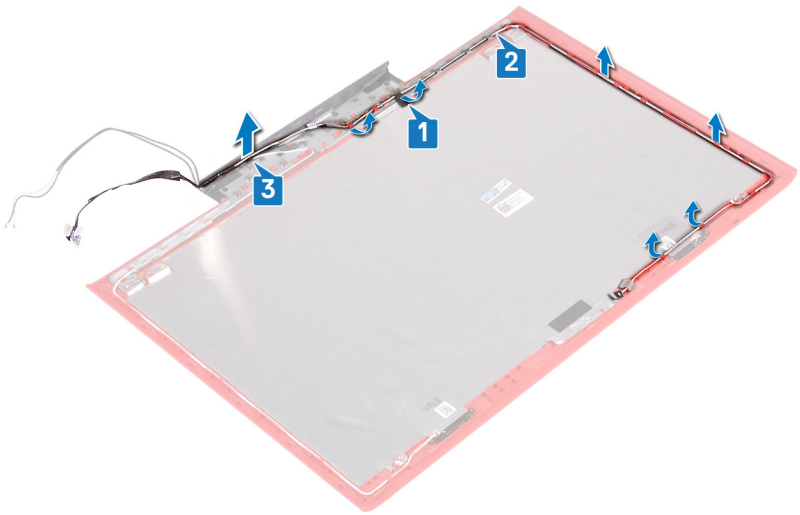
Prerequisites

1 Remove the base cover.
2 Remove the battery.
3 Remove the wireless card.
4 Remove the rear cover.
5 Follow the procedure from step 1 to step 17 in Removing the computer base.
6 Remove the display assembly.
7 Remove the display bezel.
8 Remove the display hinges.
9 Remove the display panel.
10 Remove the display cable.
11 Remove the camera.

Identifier	GUID-6A61E4F9-2F98-49D1-A863-0A47A0F5791B
Status	Released

Procedure

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



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

Identifier	GUID-2EF50600-2483-40F4-A773-0
Status	Released

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.

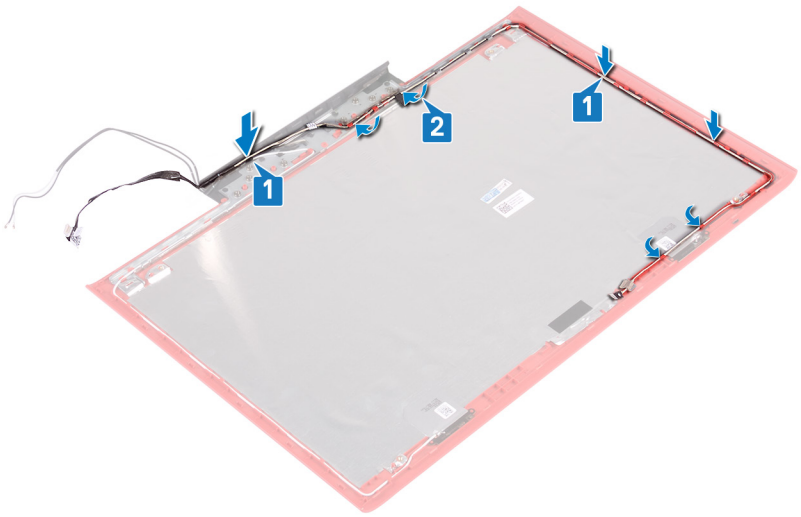
Topics:

- Procedure
- Post-requisites

Identifier	GUID-7501A384-49FF-4EF7-B7B4-58C18047DBCC
Status	Released

Procedure

1 Route the camera cable through the routing guides on the display back-cover and antenna assembly.
2 Adhere the tape that secures the camera cable to the display back-cover and antenna assembly.



Identifier	GUID-57C68E6D-2A32-452E-A773-69BC98CC674B
Status	Released

Post-requisites

1 Replace the camera.
2 Replace the display cable.
3 Replace the display panel.
4 Replace the display hinges.
5 Replace the display bezel.
6 Replace the display assembly.
7 Follow the procedure from step 7 to step 23 in Replacing the computer base.
8 Replace the rear cover.
9 Replace the wireless card.
10 Replace the battery.
11 Replace the base cover.

Identifier	GUID-F4DA2E4B-976A-4AE4-A9ED
Status	Released

Downloading drivers

Identifier	GUID-F3362F14-4774-469D-A61C-F29249DEC8AA
Status	Released

Downloading the audio driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

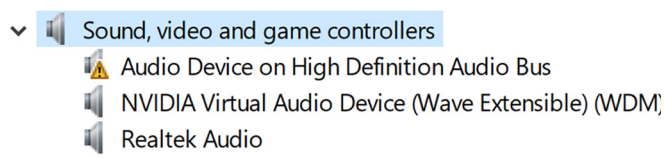
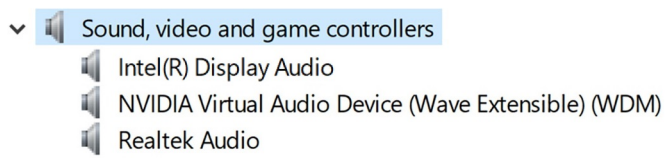
NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Audio** in the drop-down list.
15 Click **Download** to download the audio driver for your computer.
16 After the download is complete, navigate to the folder where you saved the audio driver file.
17 Double-click the audio driver file icon and follow the instructions on the screen to install the driver.

Table 3. Audio controller before and after installation

Before installation	After installation
	

Identifier	GUID-4B6BE509-59F1-49EA-A742-B2216EACF385
Status	Released

Downloading the graphics driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

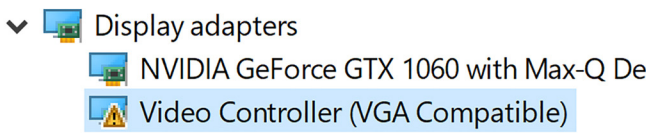
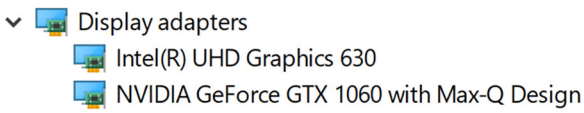
NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Video** in the drop-down list.
15 Click **Download** to download the graphics driver for your computer.
16 After the download is complete, navigate to the folder where you saved the graphics driver file.
17 Double-click the graphics driver file icon and follow the instructions on the screen to install the driver.

Table 4. Display adapters before and after installation

Before installation	After installation
	

Identifier	GUID-039F99DA-6411-4CAE-9463-7BC3D1F2D96B
Status	Released

Downloading the USB driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.

6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Chipset** in the drop-down list.
15 Click **Download** to download the USB driver for your computer.
16 After the download is complete, navigate to the folder where you saved USB driver file.
17 Double-click the USB driver file icon and follow the instructions on screen to install the driver.

Identifier	GUID-4EF072AE-0579-4BBC-9EB0-EF8356B4D587
Status	Released

Downloading the chipset driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Chipset** in the drop-down list.
15 Click **Download** to download the appropriate chipset driver for your computer.
16 After the download is complete, navigate to the folder where you saved the chipset driver file.
17 Double-click the chipset driver file icon and follow the instructions on the screen to install the driver.

Identifier	GUID-E33D62AB-D1B9-4084-AC77-D5BBE67EF25A
Status	Released

Downloading the network driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Enter the Service Tag of your computer, and then click **Submit**.

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

4 Click **Drivers & downloads**.
5 Click the **Detect Drivers** button.
6 Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7 If necessary, your computer starts to download and install **SupportAssist**.

NOTE: Review on-screen instructions for browser-specific instructions.

8 Click **View Drivers for My System**.
9 Click **Download and Install** to download and install all driver updates detected for your computer.
10 Select a location to save the files.
11 If prompted, approve requests from **User Account Control** to make changes on the system.
12 The application installs all drivers and updates identified.

NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13 For manual download and installation, click **Category**.
14 Click **Network** in the drop-down list.
15 Click **Download** to download the network driver for your computer.
16 Save the file, and after the download is complete, navigate to the folder where you saved the network driver file.
17 Double-click the network driver file icon and follow the instructions on screen.

Identifier	GUID-EEC8BD08-F4D4-4546-8CC8-58040F4F963B
Status	Released

Downloading the media-card reader driver

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

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

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

Identifier	GUID-4D6759B1-4017-4F54-87E6-9
Status	Released

System setup

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

Topics:

- Boot Sequence
- Navigation keys
- BIOS overview
- Entering BIOS setup program
- System setup options

Identifier	GUID-39EA0288-9174-49B6-ABA2-37C542A11FC5
Status	Released

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.

Identifier	GUID-7A7EB30A-4A48-422B-AE30-B8DC236A1790
Status	Released

Navigation keys

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

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

Identifier	GUID-E8E05C46-BC9D-4CF1-AC84-34B87FDCCFB7
Status	Released

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.

Identifier	GUID-1432A924-49E9-4080-961D-2AFBDAF42039
Status	Released

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.

Identifier	GUID-993C6943-13A1-4FE1-99C4-80A9AD86FF46
Status	Released

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.

Identifier	GUID-597AD25C-F728-4254-8597-E23761743996
Status	Released

Identifying the hard 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 hard drives is displayed under the **System Information** in the **General** group.

Identifier	GUID-62B237DD-0D71-4196-837A-5835AB695413
Status	Released

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.

Identifier	GUID-D3E8035A-ECFC-47A3-90D3-87FF562DB0EC
Status	Released

System setup options

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

Table 5. System setup options—System information menu

General-System Information	
System Information	
BIOS Version	Displays the BIOS version number.

General-System Information	
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.
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	
SATA-0	Displays the SATA-0 device information of the computer.
SATA-2	Displays the SATA-2 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.

General-System Information	
Boot Sequence	
Boot Sequence	Displays the boot sequence.
Boot List Option	Displays the available boot options.
Advanced Boot Options	
Enable Legacy Option ROMs	Enable or disable the Legacy Option ROMs.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack.
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 6. System setup options—System Configuration menu

System Configuration	
SATA Operation	Configure operating mode of the integrated SATA hard drive controller.
Drives	Enable or disable various drives on board.
SMART Reporting	Enable or disable SMART Reporting during system startup.
USB Configuration	
Enable Boot Support	Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.
Enable External USB Port	Enable or disable booting from USB mass storage devices connected to external USB port.
USB PowerShare	Enable or disable charging external devices through the USB PowerShare port.
Audio	Enable or disable the integrated audio controller.
Keyboard Illumination	Configure the operating mode of the keyboard illumination feature.
Keyboard Backlight with AC	Enable or disable the keyboard backlight.
Miscellaneous Devices	Enable or disable various onboard devices.
Enable Camera	Enable or disable the camera.
Enable Secure Digital (SD) Card	Enable or disable the SD card.

Table 7. System setup options—Video menu

Video	
LCD Brightness	Set the panel brightness independently for Battery and AC power.

Table 8. System setup options—Security menu

Security	
Strong Password	Enable or disable strong passwords.
Password Configuration	Control the minimum and maximum number of characters allowed for Admin and System passwords.
Password Bypass	Bypass the System (Boot) Password and the internal HDD password prompts during a system restart.

Security	
Password Change	Enable or disable changes to the System and Hard Disk passwords when an administrator password is set.
Non-Admin Setup Changes	Determines whether changes to the setup option are permitted when an administrator password is set.
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages.
PTT Security	Enable or disable Platform Trust Technology (PTT) visibility to the operating system.
Computrace(R)	Enable or disable the BIOS module interface of the optional Computrace(R) Service from Absolute Software.
CPU XD Support	Enable or disable the Execute Disable mode of the Processor.
Admin Setup Lockout	Enable to prevent users from entering Setup when an Admin Password is set.

Table 9. System setup options—Secure Boot menu

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

Table 10. System setup options—Intel Software Guard Extensions menu

Intel Software Guard Extensions	
Intel SGX Enable	Enable or disable Intel Software Guard Extensions.
Enclave Memory Size	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.
Performance	
Multi Core Support	Enable multiple cores. Default: Enabled.
Intel SpeedStep	Enable or disable Intel Speedstep Technology. Default: Enabled. **NOTE: If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.**
C-States Control	Enable or disable additional processor sleep states. Default: Enabled.
Intel TurboBoost	Enable or disable Intel TurboBoost mode of the processor. Default: Enabled.
HyperThread control	Enable or disable HyperThreading in the processor. Default: Enabled.
Power Management	
AC Behavior	Enables the system to turn on automatically, when AC is inserted.
Enable Intel Speed Shift Technology	Enable or disable Intel Speed Shift Technology.

Intel Software Guard Extensions	
Auto on Time	Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays or Selected Days. Default: Disabled.
USB Wake Support	Enable the USB devices to wake the computer from Standby.
Advanced Battery Charge Configuration	Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period.
Primary Battery Charge Configuration	Set the primary battery charge settings with a preselected custom charge start and stop. Default: Adaptive.
POST Behavior	
Adapter Warnings	Enable adapter warnings. Default: Enabled.
Numlock Enable	Enable or disable Numlock. Default: Enable Numlock.
Fn Lock Options	Enable or disable the Fn lock mode.
Fastboot	Enable to set the speed of the boot process. Default: Thorough.
Extend BIOS POST Time	Configure additional pre-boot delay.
Pull Screen Logo	Enable or disable to display full screen logo.
Warnings and Errors	Select an action on encountering a warning or error.

Table 11. System setup options—Virtualization Support menu

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

Table 12. System setup options—Wireless menu

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

Table 13. System setup options—Maintenance menu

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

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

Table 14. System setup options—System Logs menu

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

Table 15. System setup options—SupportAssist System Resolution menu

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

Identifier	GUID-F93F7E34-BE30-464B-886E-
Status	Released

Troubleshooting

Identifier	GUID-F5899359-C2E1-41C0-9663-4C79969506EB
Status	Released

Flashing the BIOS

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

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

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

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

Identifier	GUID-060D210F-C287-462B-AC38-81183D440A9D
Status	Released

Flashing BIOS (USB key)

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

Identifier	GUID-EE9A5D95-88BE-4EE7-983E-D97C680BDECD
Status	Released

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.

Identifier	GUID-0B893EED-EFBC-4831-A9C4-7298A7A9F619
Status	Released

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.

Identifier	GUID-1249AF58-9DA3-473D-BDB7-73F41F8FFBA8
Status	Released

System diagnostic lights

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

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

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

Hard-drive activity light

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

NOTE: Hard-drive activity light is supported only on computers shipped with hard drive.

Power and battery-status light

Indicates the power and battery-charge status

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

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

Off

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

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

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

The following table shows different light patterns and describes what they indicate.

Table 16. Diagnostics

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

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

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

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

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

Identifier	GUID-7D2143EA-2C62-498E-97AF-DCEF3DA56624
Status	Released

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.

Identifier	GUID-6F9B4221-4C13-4202-9279-5074420DCDA9
Status	Released

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.

Getting help and contacting Dell

Self-help resources

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

Table 17. Self-help resources

Information about Dell products and services	www.dell.com
Dell Help & Support app	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Dell knowledge base articles for a variety of computer concerns.	1 Go to www.dell.com/support. 2 Type the subject or keyword in the **Search** box. 3 Click **Search** to retrieve the related articles.
Learn and know the following information about your product: • Product specifications • Operating system • Setting up and using your product • Data backup • Troubleshooting and diagnostics • Factory and system restore • BIOS information	See *Me and My Dell* at www.dell.com/support/manuals. To locate the *Me and My Dell* relevant to your product, identify your product through one of the following: • Select **Detect Product**. • Locate your product through the drop-down menu under **View Products**. • Enter the **Service Tag number** or **Product ID** in the search bar.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

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

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