XPS 15 2-in-1

Service Manual

Computer Model: XPS 15-9575
Regulatory Model: P73F
Regulatory Type: P73F001

Notes, cautions, and warnings

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

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

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

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1

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

Before you begin

1 Save and close all open files and exit all open applications.

2 Shut down your computer. Click **Start** > **Power** > **Shut down**.

NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.

3 Disconnect your computer and all attached devices from their electrical outlets.

4 Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.

5 Remove any media card and optical disc from your computer, if applicable.

Safety instructions

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

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

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

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

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

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

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

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

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

Recommended tools

The procedures in this document may require the following tools:

- Phillips #00 and #01 screwdriver
- Torx #5 (T5) screwdriver
- Plastic scribe

Screw list

The following table provides the list of screws that are used for securing different components.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Base cover	Palm-rest and keyboard assembly	M2x3	8	
Battery	Palm-rest and keyboard assembly	M2x5	8	
Display assembly	Palm-rest and keyboard assembly	M2.5x4	6	
Display-cable bracket	System board	M1.6x1.8	2	
Fans	Palm-rest and keyboard assembly	M2x3	4	
Fingerprint-reader	Palm-rest and keyboard assembly	M1.6x1.8	1	
Heat sink	System board	M2x3	5	
I/O board	Palm-rest and keyboard assembly	M2x4	3	
I/O-board interposer	Palm-rest and keyboard assembly	M1.6x5.5	4	
Power button	Palm-rest and keyboard assembly	M2x1.7	1	
Speakers	Palm-rest and keyboard assembly	M2x1.7	2	
Solid-state drive	System board	M2x3	1	
System board	Palm-rest and keyboard assembly	M2x3	2	
Type-C USB bracket	I/O board	M2x4	3	

Component	Secured to	Screw type	Quantity	Screw image
Type-C USB bracket	System board	M2x4	3	
Wireless-antenna bracket	System board	M2x4	2	

2

After working inside your computer

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

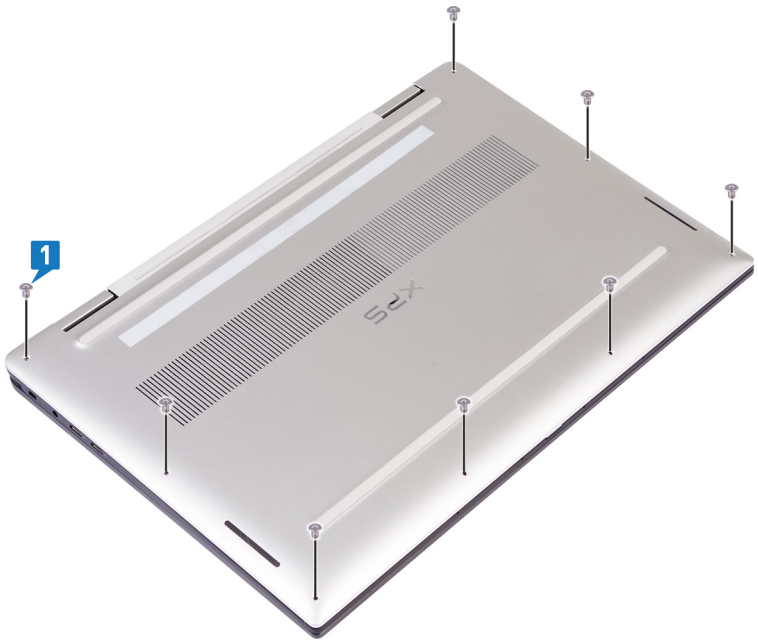
1 Replace all screws and ensure that no stray screws remain inside your computer.
2 Connect any external devices, peripherals, or cables you removed before working on your computer.
3 Replace any media cards, discs, or any other parts that you removed before working on your computer.
4 Connect your computer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

Removing the base cover

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

Procedure

1 Remove the eight screws (M2x3) that secure the base cover to the palm-rest and keyboard assembly.

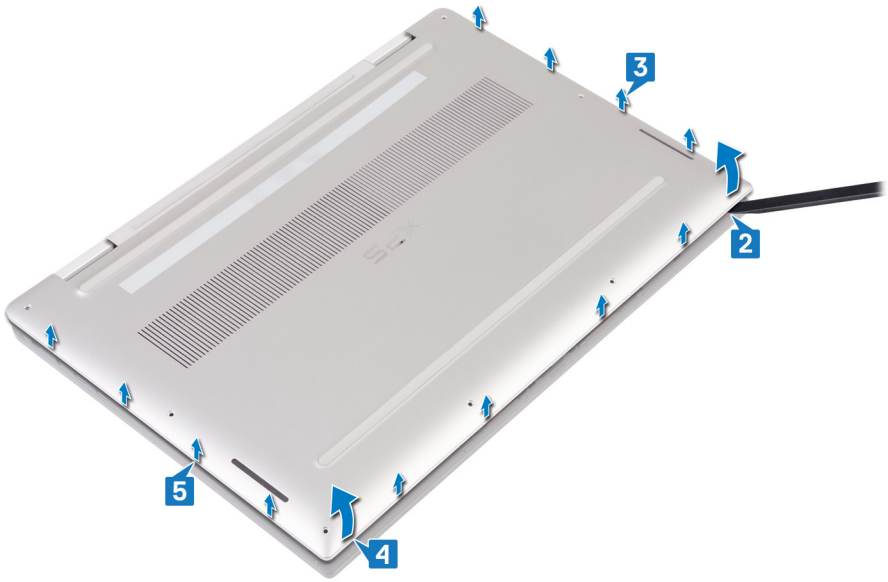


2 Using a plastic scribe, pry the base cover from the right corner of the palm-rest and keyboard assembly.

3 Pry the base cover starting from the right side of palm-rest and keyboard assembly.

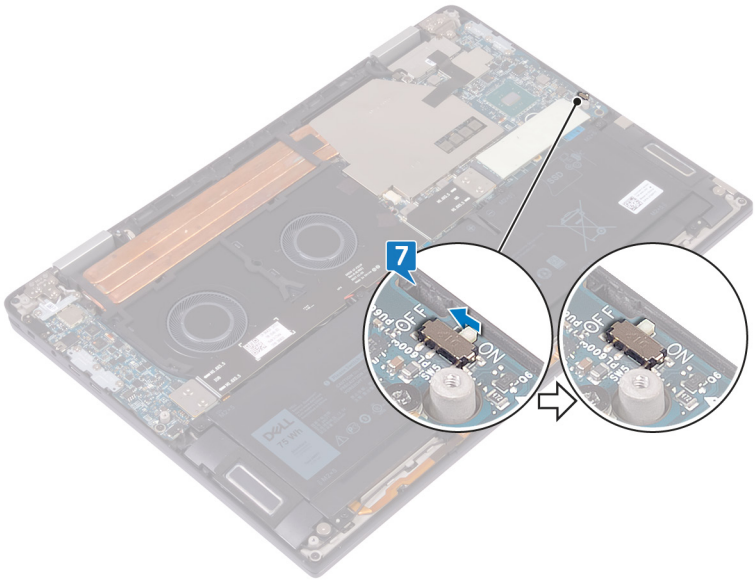
4 Pry the base cover from the bottom left corner of the palm-rest and keyboard assembly.

5 Pry the base cover from the left side of the palm-rest and keyboard assembly.



6 Move the base cover from left to right and lift the base cover from the palm-rest and keyboard assembly.

7 Turn-off the battery switch.



NOTE: Turn-off the battery switch before you proceed to remove any other component from your computer.

Replacing the base cover

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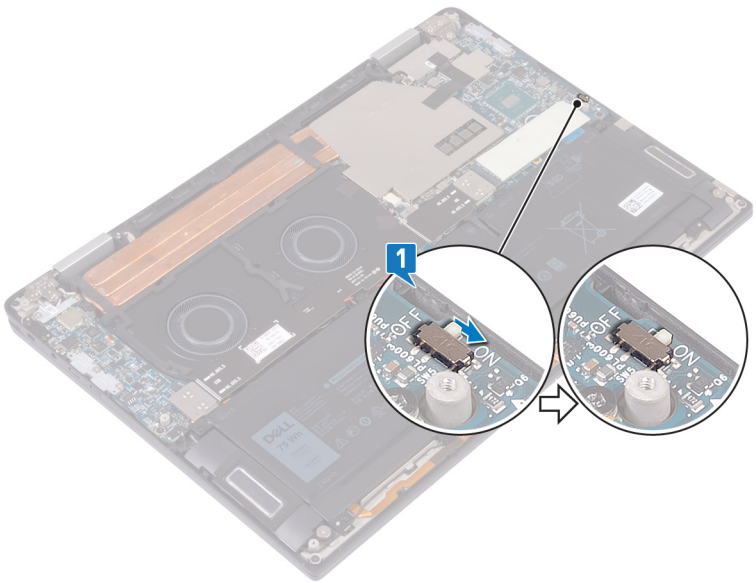
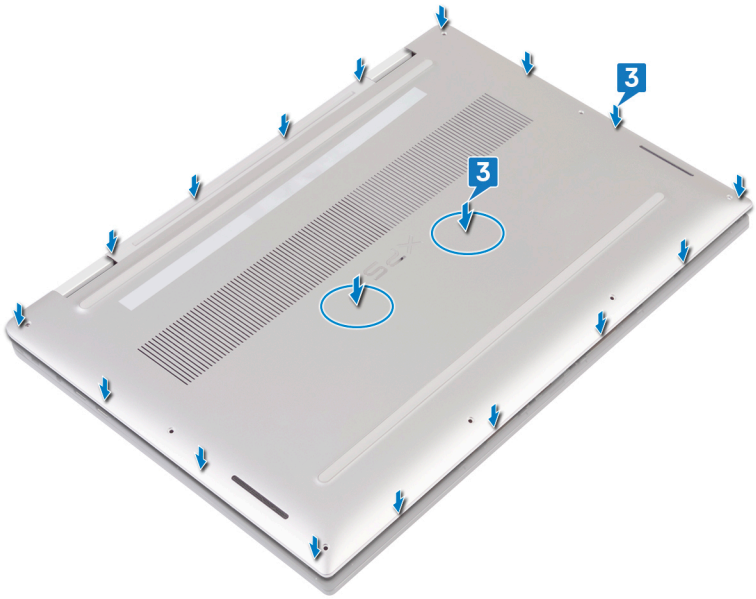
Procedure

1 Turn-on the battery switch.

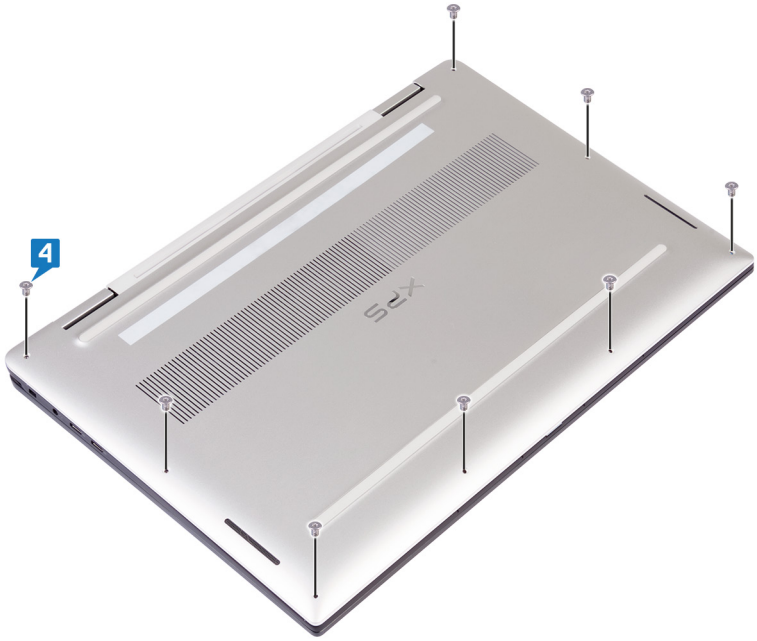


2 Align the screw holes on the base cover with the screw holes on the palm-rest and keyboard assembly.

3 Snap the base cover into the tabs on the palm-rest and keyboard assembly.



4 Replace the eight screws (M2x3) that secure the base cover to the palm-rest and keyboard assembly.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Removing the solid-state drive

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

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

Topics:

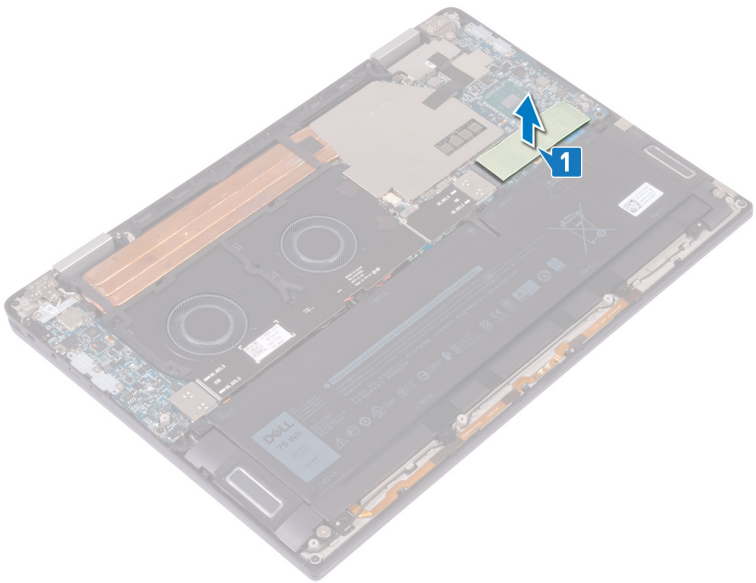
- Prerequisites
- Procedure

Prerequisites

Remove the base cover.

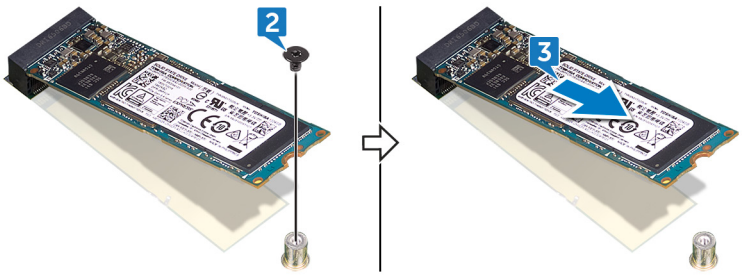
Procedure

1 Peel and remove the thermal pad from the solid-state drive.



2 Remove the screw (M2x3) that secures the solid-state drive to the system board.

3 Lift the solid-state drive at an angle, then slide and remove the solid-state drive from the solid-state drive slot.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3

Replacing the solid-state drive

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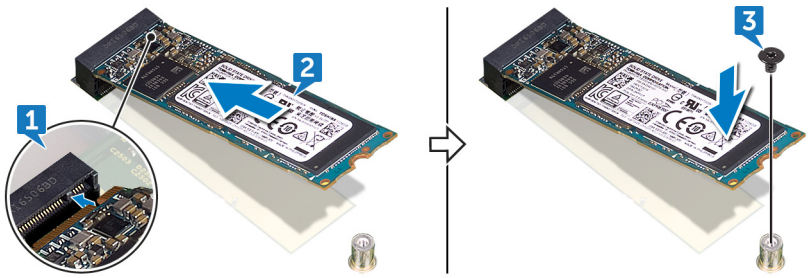
CAUTION: Solid-state drives are fragile. Exercise care when handling the solid-state drive.

Topics:

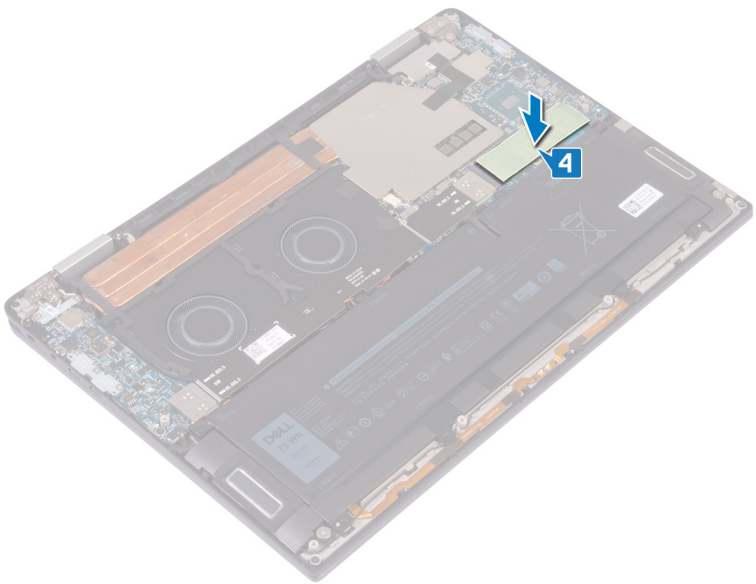
- Procedure
- Post-requisites

Procedure

1 Align the notch on the solid-state drive with the tab on the solid-state drive slot.
2 At an angle, slide the solid-state drive into the solid-state drive slot.
3 Replace the screw (M2x3) that secures the solid-state drive to the system board.



4 Adhere the thermal pad on the solid-state drive.



Post-requisites

Replace the base cover.

Removing the I/O-board interposers

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

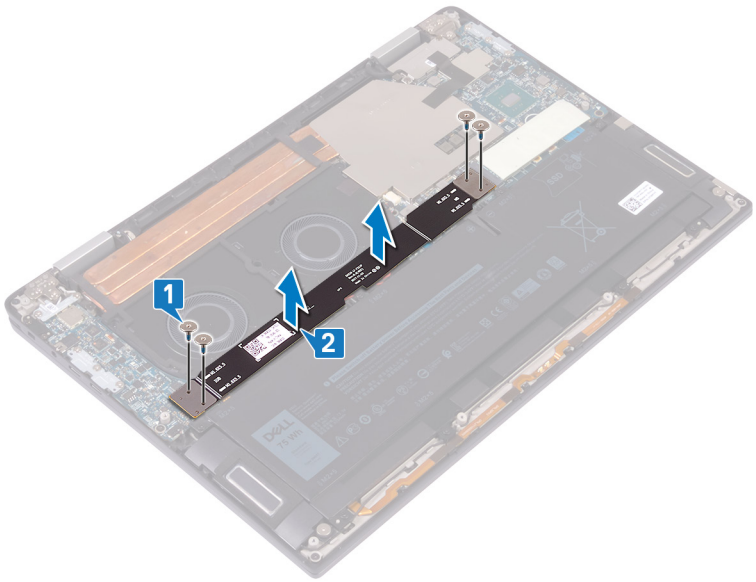
Prerequisites

Remove the base cover.

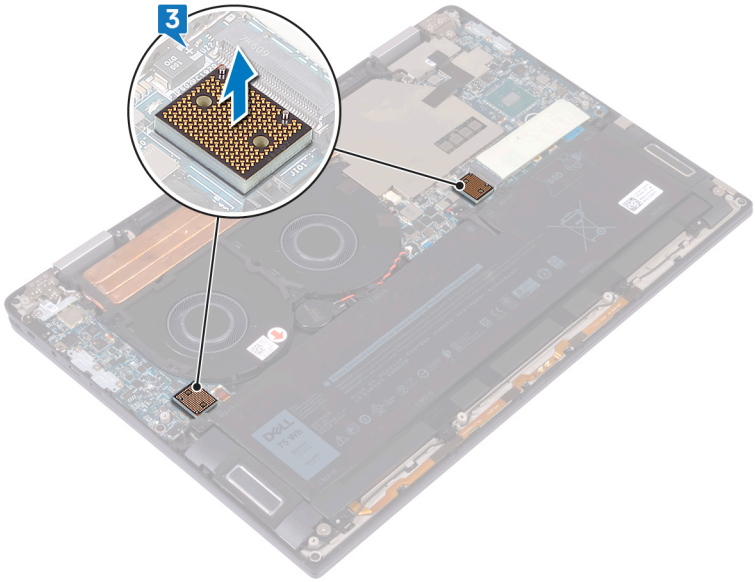
Procedure

1 Remove the four screws (M1.6x5.5) that secure the I/O-board cable to the system board.

2 Peel and remove the I/O-board cable from the fans.



3 Remove the two I/O-board interposers from the system board.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Replacing the I/O-board interposers

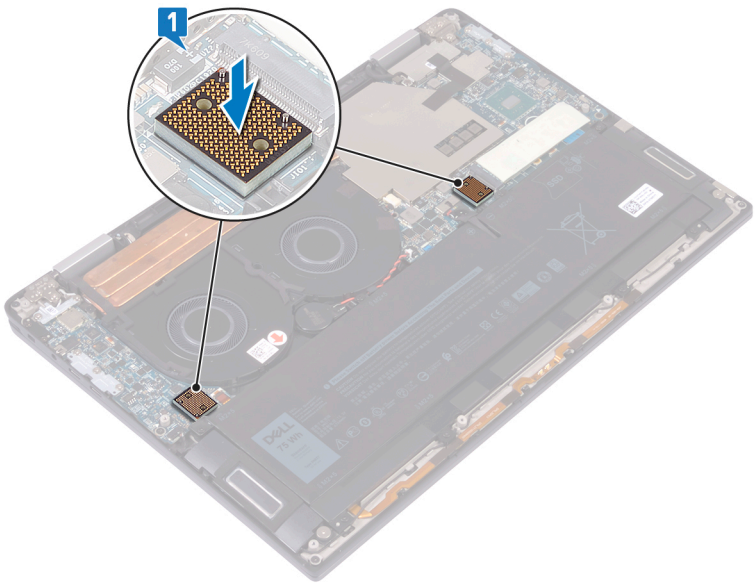
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Topics:

- Procedure
- Post-requisites

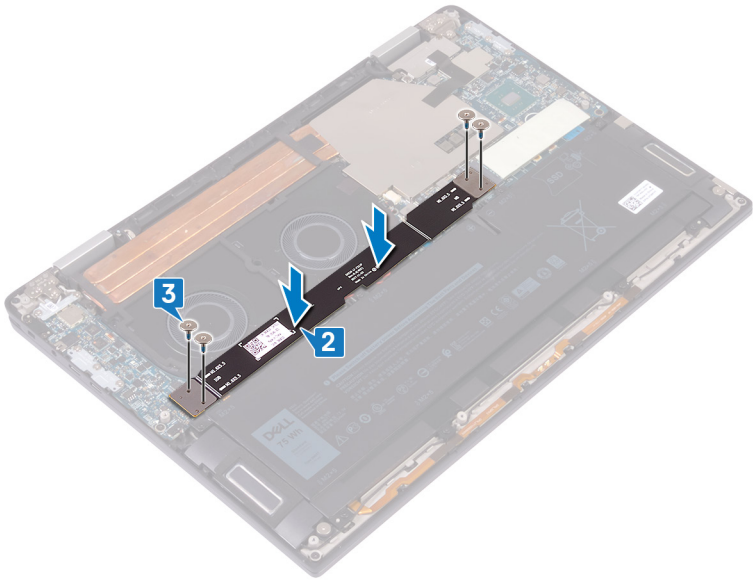
Procedure

1 Using the alignment posts, place the two I/O-board interposers on the system board.



2 Align the screw holes on the I/O-board cable with the screw holes on the I/O-board interposers and adhere the I/O-board cable to the fans.

3 Replace the four screws (M1.6x5.5) that secure the I/O-board cable to the system board.



Post-requisites

Replace the base cover.

9

Removing the heat sink

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

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

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

Topics:

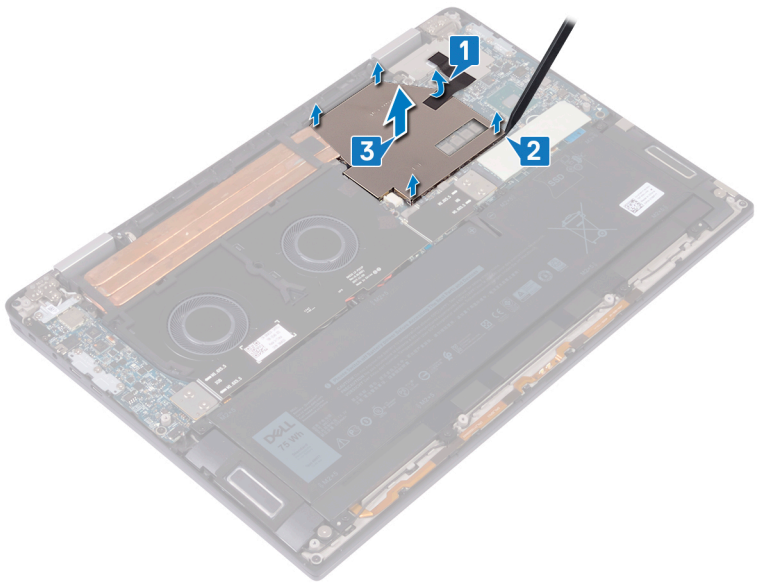
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.

Procedure

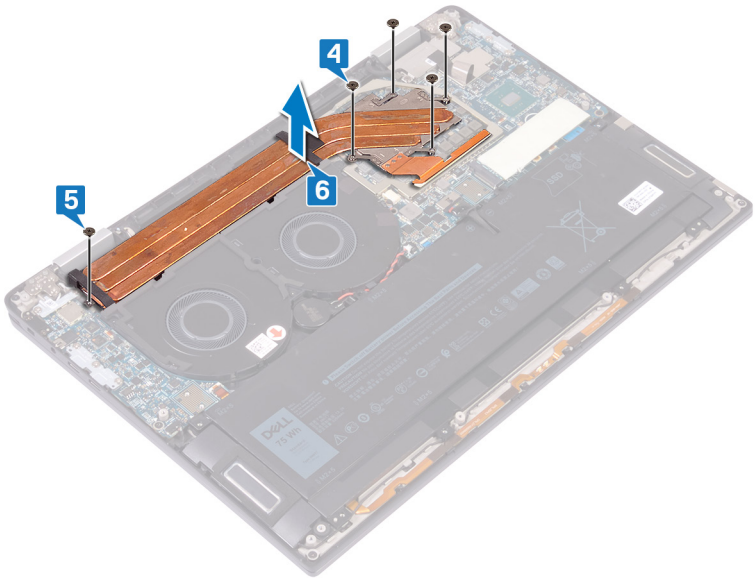
1 Peel the tape that secures the heat-sink shield to the system board.
2 Using a plastic scribe, release the heat-sink shield from the slots on the system board.
3 Lift the heat-sink shield off the system board.



4 In reverse sequential order (as indicated on the heat sink), remove the four screws (M2x3) that secure the heat sink to the system board.

5 Remove the screw (M2x3) that secures the heat sink to the palm-rest and keyboard assembly.

6 Lift the heat sink off the system board.



Replacing the heat sink

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

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

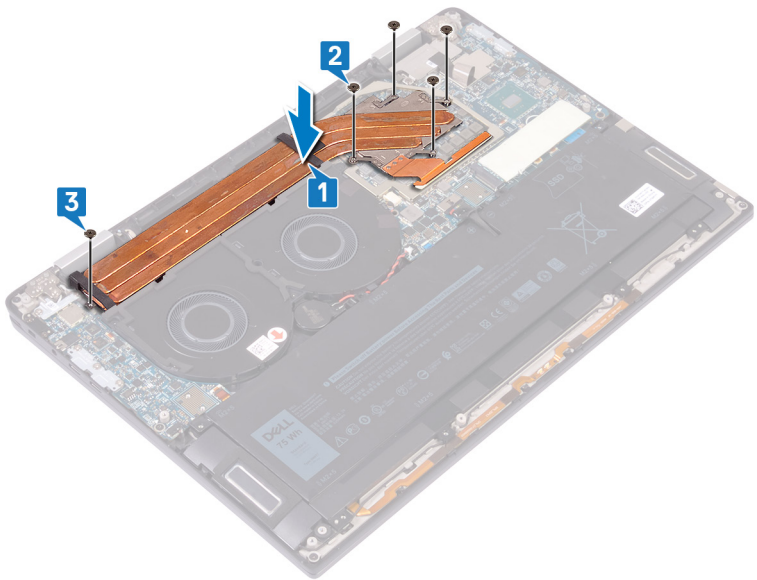
NOTE: If either the system board or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

Topics:

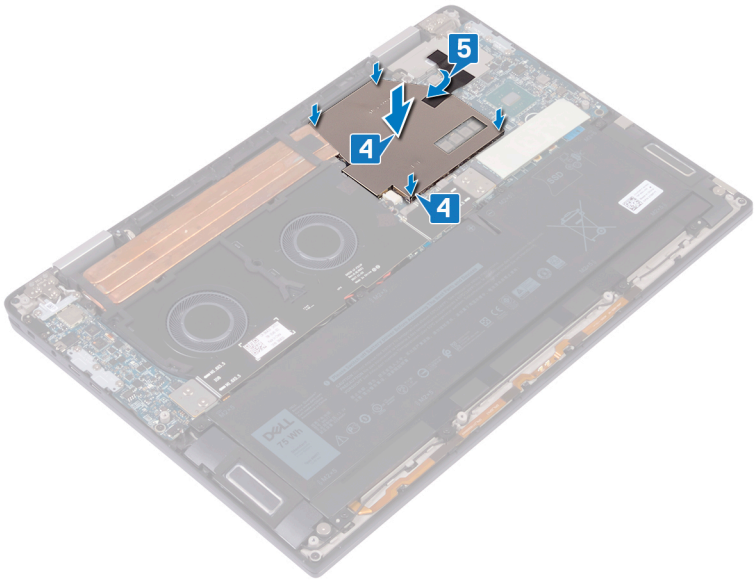
- Procedure
- Post-requisites

Procedure

1 Place the heat sink on the system board and align the screw holes on the heat sink with the screw holes on the system board.
2 In sequential order (as indicated on the heat sink), replace the five screws (M2x3) that secure the heat sink to the system board.
3 Replace the screw (M2x3) that secures the heat sink to the palm-rest and keyboard assembly.



4 Place the heat-sink shield on the slots on the system board and press down the heat-sink shield to snap it into place.
5 Adhere the tape that secures the heat-sink shield to the system board.



Post-requisites

1 Replace the I/O-board interposers.
2 Replace the base cover.

Removing the fans

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Topics:

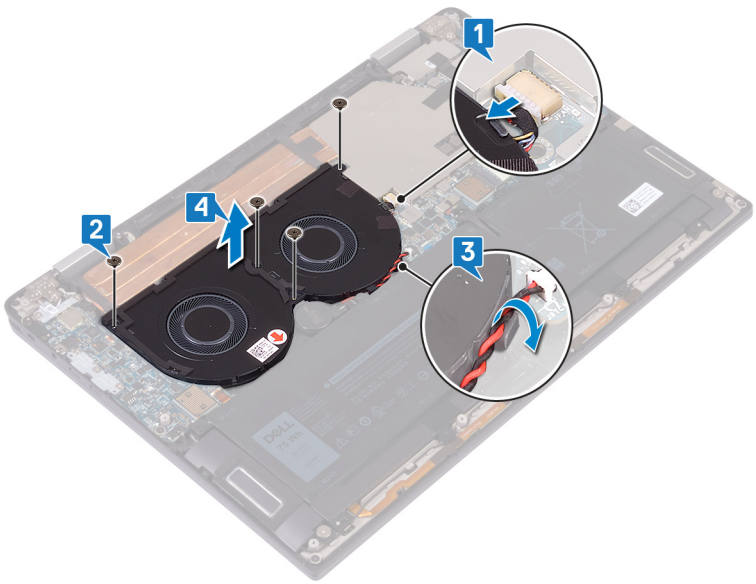
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.

Procedure

1 Disconnect the fan cable from the system board.
2 Remove the four screws (M2x3) that secure the fans to the palm-rest and keyboard assembly.
3 Remove the coin-cell battery cable from the routing guides on the fans.
4 Lift the fans along with their cable, off the system board.



Replacing the fans

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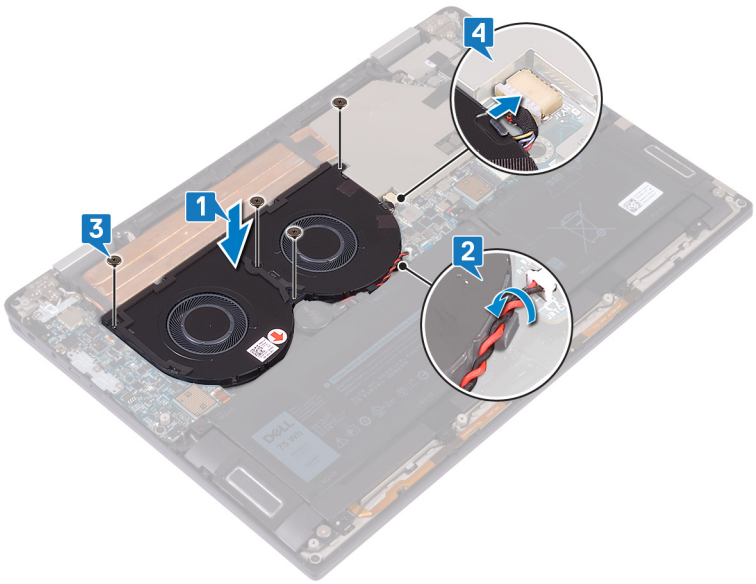
Topics:

- Procedure
- Post-requisites

Procedure

1 Align the screw holes on the fans with the screw holes on the palm-rest and keyboard assembly.
2 Route the coin-cell battery cable through the routing guides on the fans.
3 Replace the four screws (M2x3) that secure the fans to the palm-rest and keyboard assembly.
4 Connect the fan cable to the system board.



Post-requisites

1 Replace the I/O-board interposers.
2 Replace the base cover.

Removing the battery

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Topics:

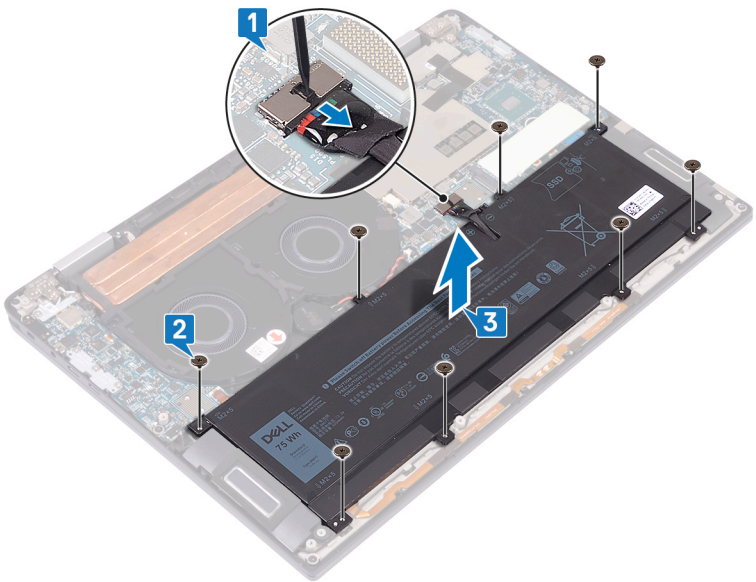
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.

Procedure

1 Using a plastic scribe, push the tab and disconnect the battery cable from the system board.
2 Remove the eight screws (M2x5) that secure the battery to the palm-rest and keyboard assembly.
3 Lift the battery off the palm-rest and keyboard assembly.



4 Turn the computer over, open the display, and press the power button for about 5 seconds to ground the computer.

Replacing the battery

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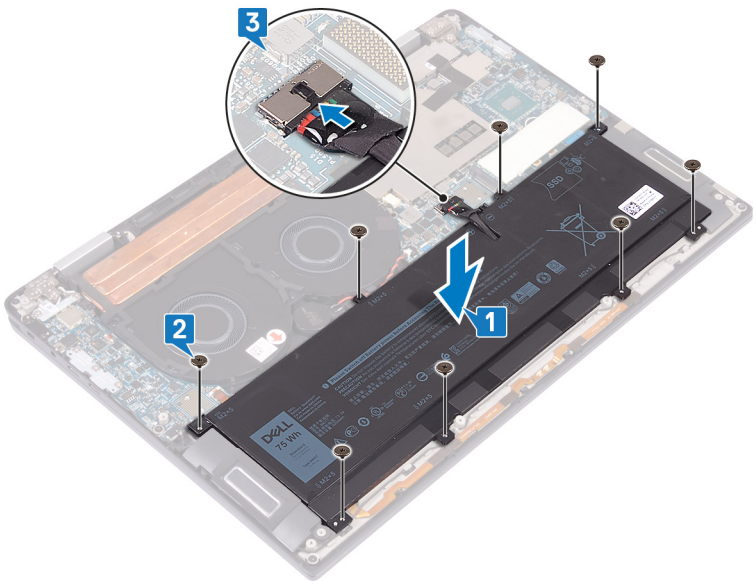
Topics:

- Procedure
- Post-requisites

Procedure

1 Place the battery on the palm-rest and keyboard assembly and align the screw holes on the battery with the screw holes on the palm-rest and keyboard assembly.
2 Replace the eight screws (M2x5) that secure the battery to the palm-rest and keyboard assembly.
3 Connect the battery cable to the system board.



Post-requisites

1 Replace the I/O-board interposers.
2 Replace the base cover.

15

Removing the I/O board

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

Topics:

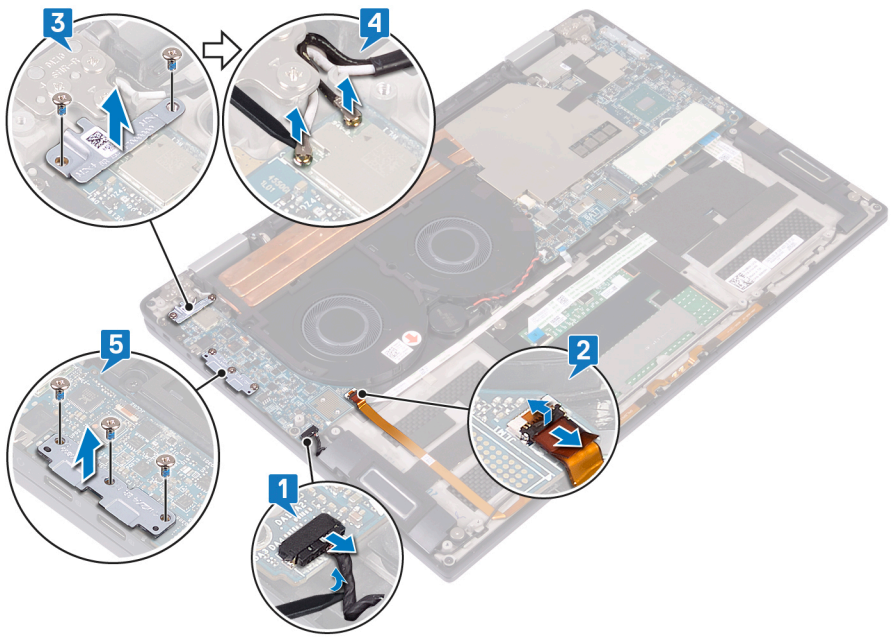
- Prerequisites
- Procedure

Prerequisites

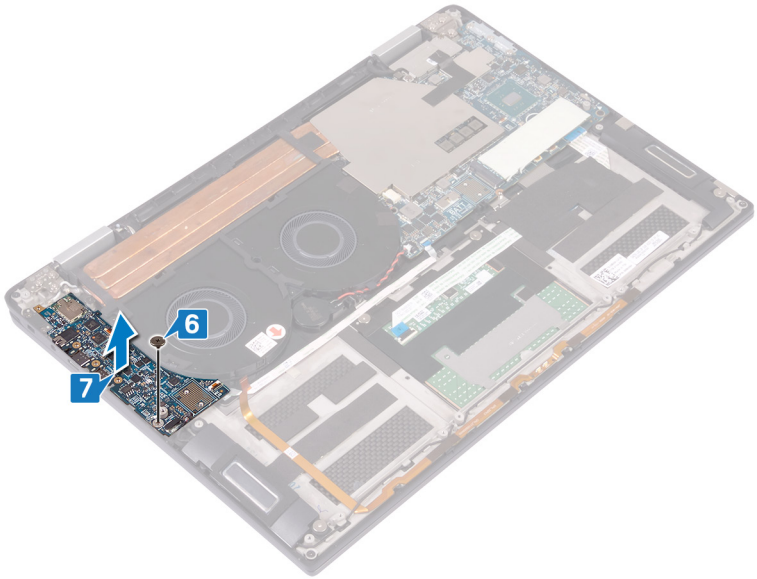
1 Remove the base cover.
2 Remove the I/O-board interposers.
3 Remove the battery.

Procedure

1 Using a plastic scribe, disconnect the speaker cable from the system board.
2 Disconnect the LED and microphone cable from the I/O board.
3 Remove the two screws (M2x4) that secure the wireless-antenna bracket to the I/O board.
4 Using a plastic scribe, disconnect the antenna cables from the I/O board.
5 Remove the three screws (M2x4) that secure the Type-C USB bracket to the I/O board.



6 Remove the screw (M2x3) that secures the IO board to the palm-rest and keyboard assembly.
7 Lift the I/O board off the palm-rest and keyboard assembly.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16

Replacing the I/O board

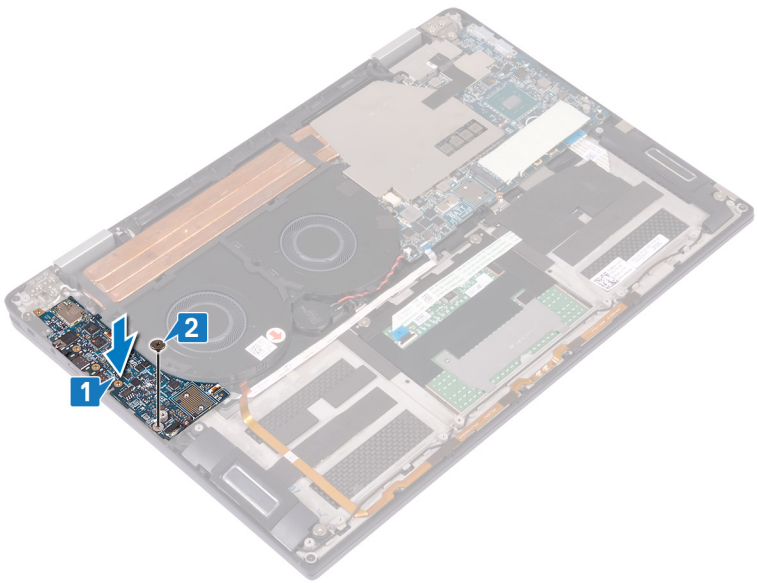
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Topics:

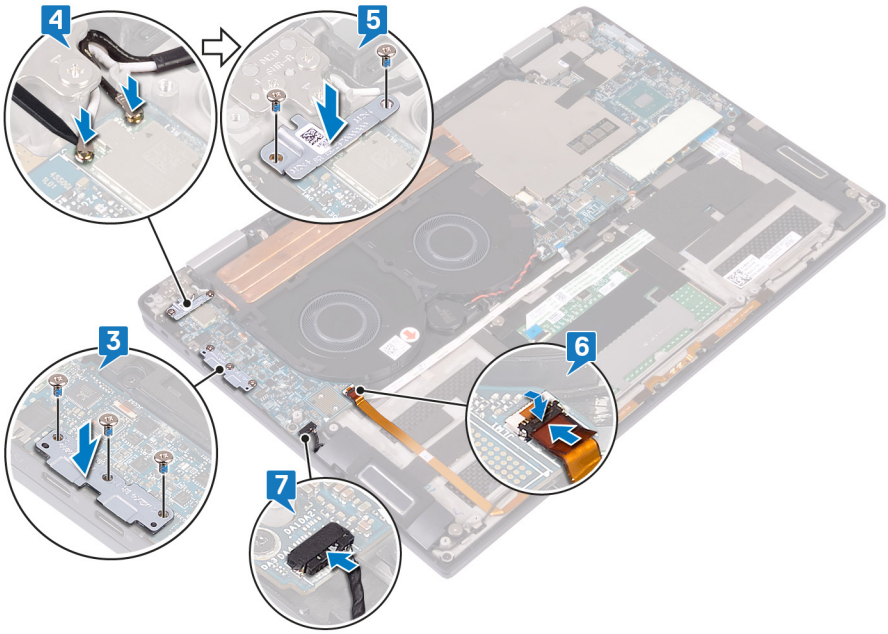
- Procedure
- Post-requisites

Procedure

1 Using the alignment posts, align the screw hole on the I/O board with the screw hole on the palm-rest and keyboard assembly.
2 Replace the screw (M2x3) that secures the IO board to the palm-rest and keyboard assembly.



3 Place the Type-C USB bracket on the I/O board and replace the three screws (M2x4) that secure the Type-C USB bracket to the I/O board.
4 Connect the antenna cables to the I/O board.
5 Place the wireless-antenna bracket on the I/O board and replace the two screws (M2x4) that secure the wireless-antenna bracket to the I/O board.
6 Connect the and LED and microphone cable to the I/O board.
7 Connect the speaker cable to the system board.



Post-requisites

1 Replace the battery.
2 Replace the I/O-board interposers.
3 Replace the base cover.

Removing the speakers

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

Topics:

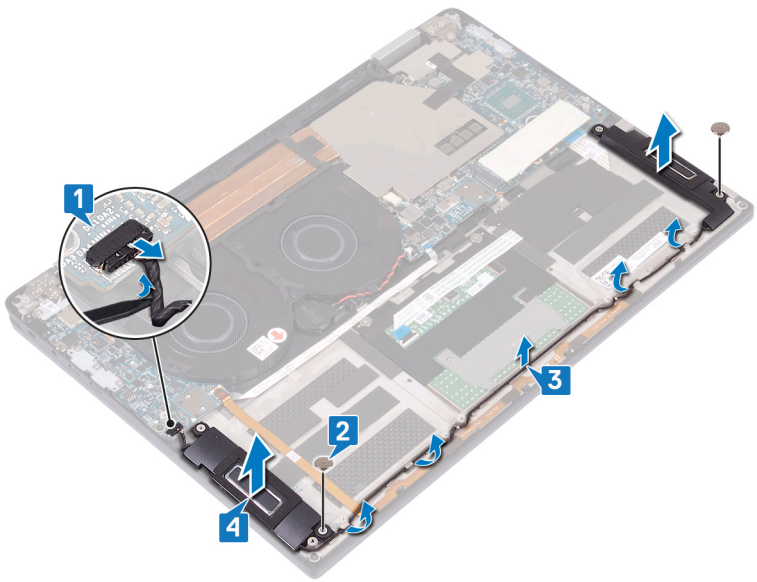
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.
3 Remove the battery.

Procedure

1 Disconnect the speaker cable from the system board.
2 Remove the two screws (M2x1.7) that secure the left and right speakers to the palm-rest and keyboard assembly.
3 Note the speaker-cable routing and remove the cable from the routing guides on the palm-rest and keyboard assembly.
4 Lift the left and right speakers, along with their cables, off the palm-rest and keyboard assembly.



Replacing the speakers

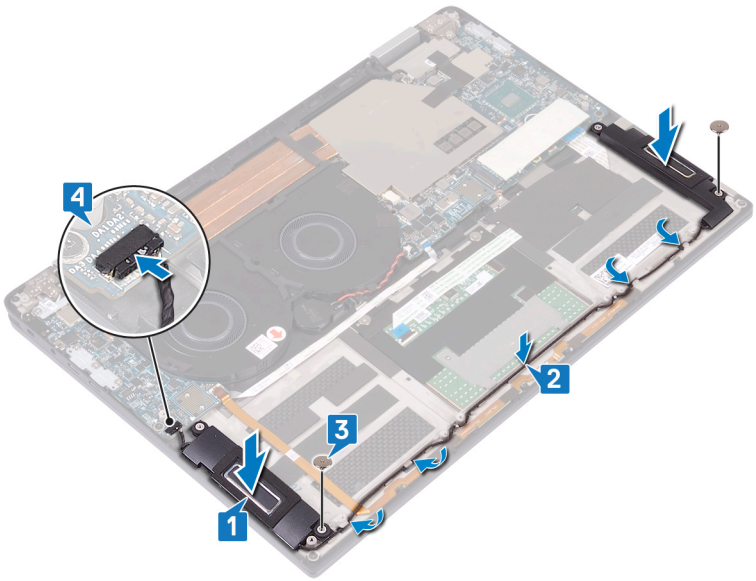
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Topics:

- Procedure
- Post-requisites

Procedure

1 Using the alignment posts, place the left and right speaker on the palm-rest and keyboard assembly.
2 Using the routing guides, route the speaker cable on the palm-rest and keyboard assembly.
3 Replace the two screws (M2x1.7) that secure the left and right speakers to the palm-rest and keyboard assembly.
4 Connect the speaker cable to the system board.



Post-requisites

1 Replace the battery.
2 Replace the I/O-board interposers.
3 Replace the base cover.

Removing the coin-cell battery

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

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

Topics:

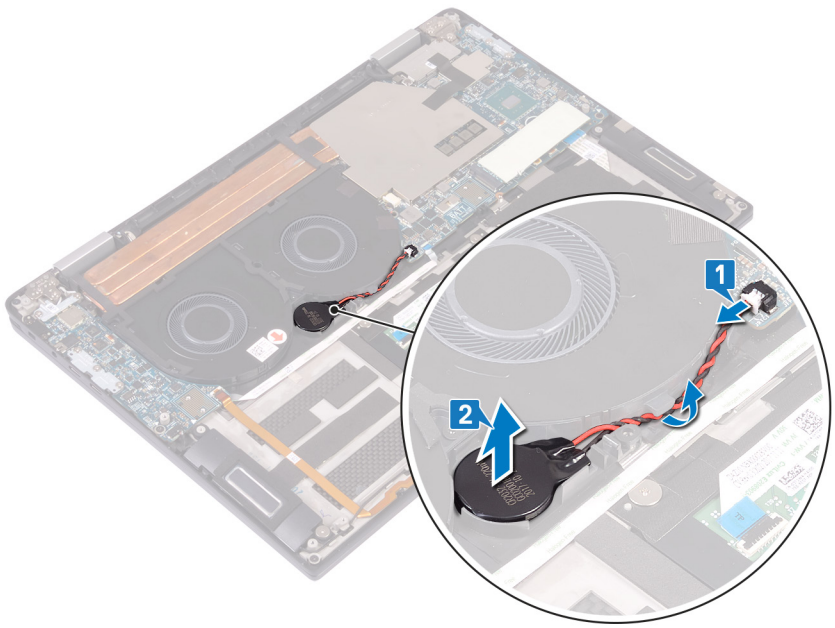
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.
3 Remove the battery.

Procedure

1 Disconnect the coin-cell battery cable from the system board and release the coin-cell battery cable from the routing guides on the fan.
2 Note the location of the coin-cell battery and pry it off the system board.



Replacing the coin-cell battery

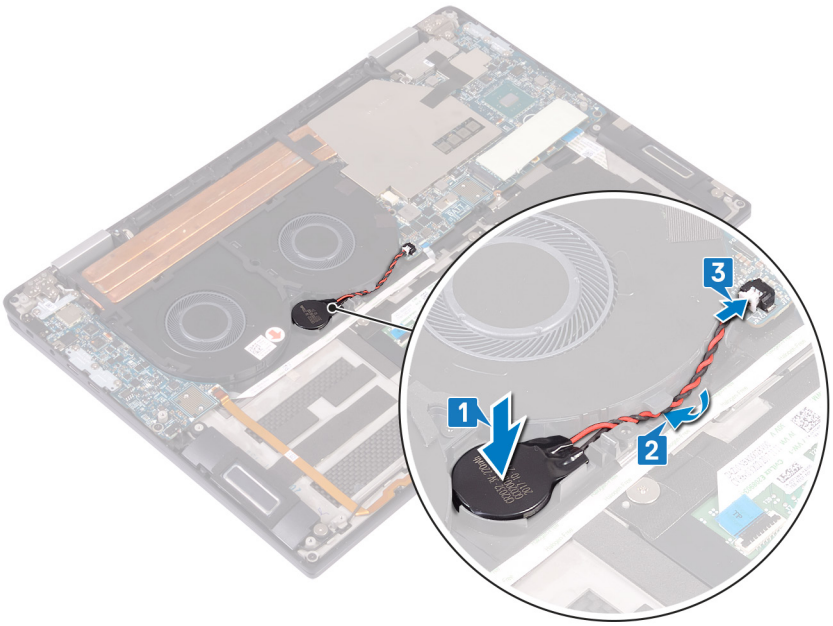
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Topics:

- Procedure
- Post-requisites

Procedure

1 Adhere the coin-cell battery to the system board.
2 Using the routing guides, route the coin-cell battery cable on the fan.
3 Connect the coin-cell battery cable to the system board.



Post-requisites

1 Replace the battery.
2 Replace the I/O-board interposers.
3 Replace the base cover.

Removing the power button with fingerprint reader

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

Topics:

- Prerequisites
- Procedure

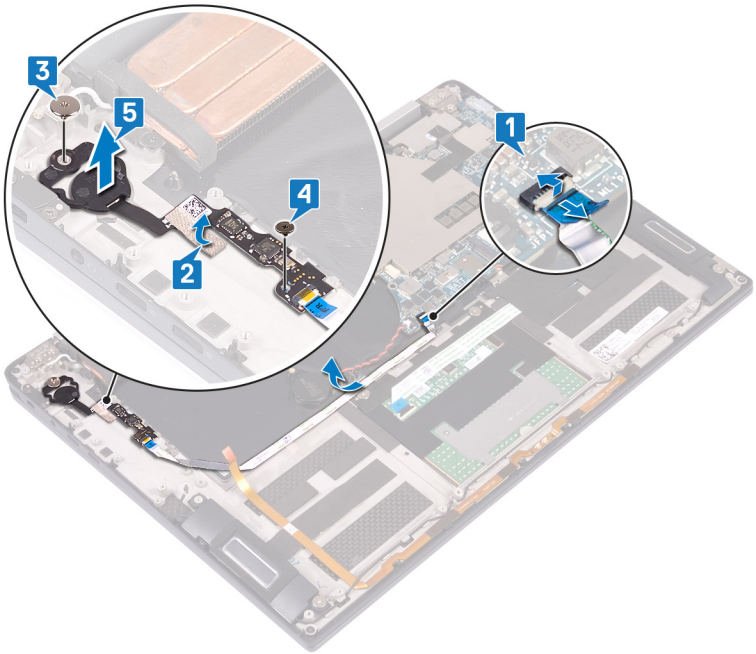
Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.
3 Remove the battery.
4 Remove the I/O board.

Procedure

NOTE: Step 1, 2, and 4 are applicable only for the computers that are shipped with fingerprint reader.

1 Open the latch and disconnect the fingerprint-reader cable from the system board and peel the fingerprint-reader cable from the palm-rest and keyboard assembly.
2 Peel the tape that secures the power button cable to the palm-rest and keyboard assembly.
3 Remove the screw (M2x1.7) that secures the power button to the palm-rest and keyboard assembly.
4 Remove the screw (M1.6x1.8) that secures the fingerprint-reader to the palm-rest and keyboard assembly.
5 Peel and lift the power button and fingerprint reader (optional), along with its cable, off the palm-rest and keyboard assembly.


3
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1

Replacing the power button with fingerprint reader

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

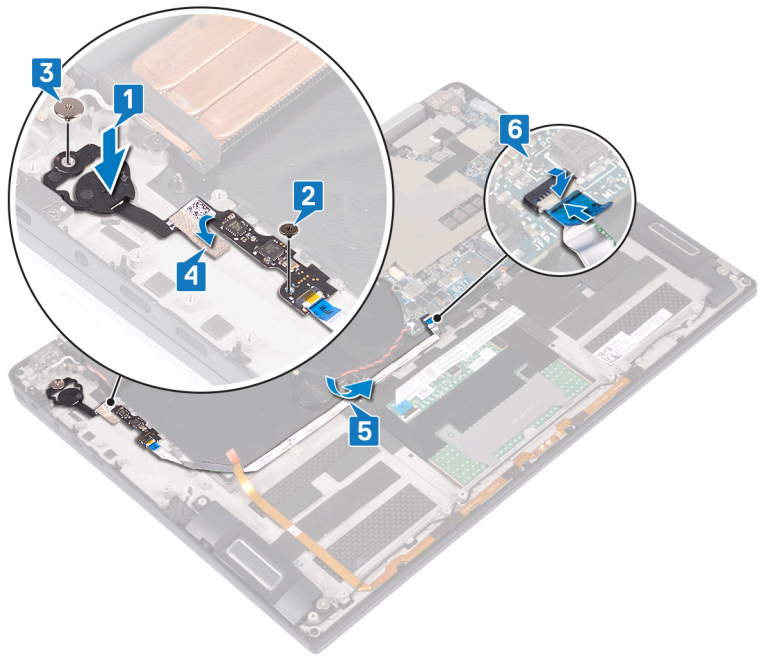
Topics:

- Procedure
- Post-requisites

Procedure

NOTE: Step 2, 4, and 5 are applicable only for the computers that are shipped with fingerprint reader.

1 Place the power button and fingerprint reader (optional) into its slot on the palm-rest and keyboard assembly.
2 Replace the screw (M1.6x1.8) that secures the fingerprint-reader to the palm-rest and keyboard assembly.
3 Replace the screw (M2x1.7) that secures the power button to the palm-rest and keyboard assembly.
4 Adhere the tape that secures the power button cable to the palm-rest and keyboard assembly.
5 Adhere the fingerprint-reader cable to the palm-rest and keyboard assembly.
6 Connect the fingerprint-reader cable to the system board and close the latch.



Post-requisites

1 Replace the I/O board.
2 Replace the battery.
3 Replace the I/O-board interposers.
4 Replace the base cover.

Removing the display assembly

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

Topics:

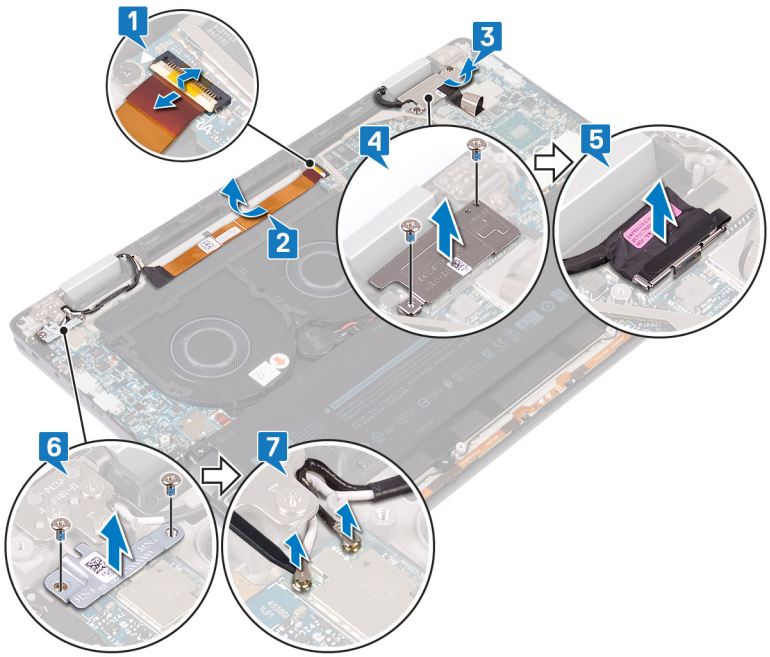
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the I/O-board interposers.
3 Remove the heat sink.

Procedure

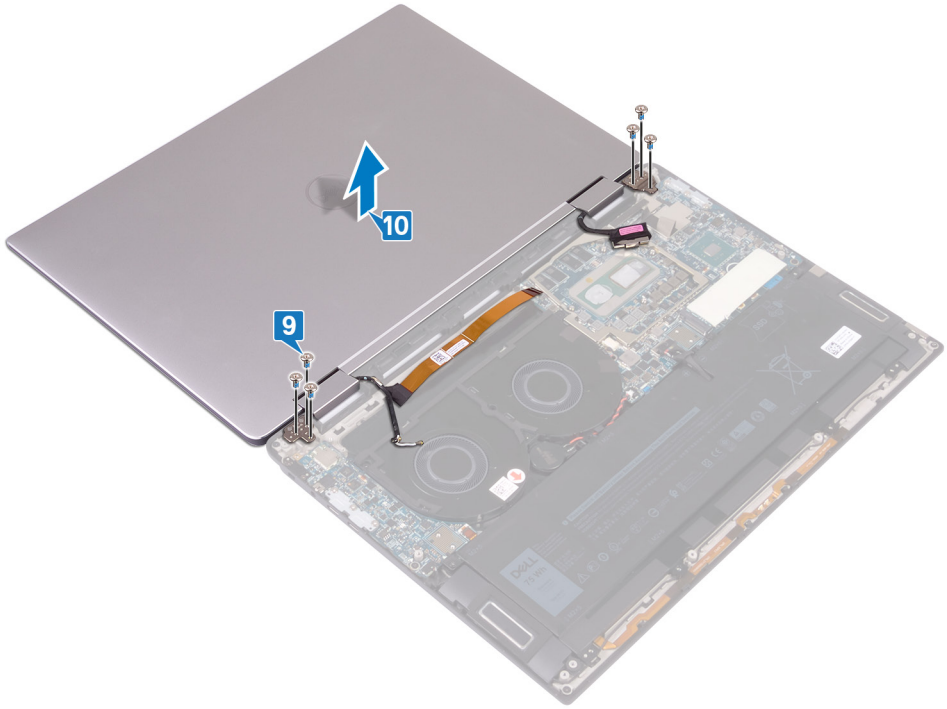
1 Open the latch and disconnect the camera cable from the system board.
2 Peel the camera cable from the palm-rest and keyboard assembly.
3 Peel the tape that secures the display-cable bracket to the system board.
4 Remove the two screws (M1.6x1.8) that secure the display-cable bracket to the system board and lift the bracket off the system board.
5 Using the pull tab, disconnect the display cable from the system board.
6 Remove the two screws (M2x4) that secure the wireless-antenna bracket to the I/O board and lift the bracket off the I/O board.
7 Disconnect the antenna cables from the I/O board.



8 Open the computer at a 180-degree angle and place it on a flat and clean surface with the display screen facing down.

9 Remove the six screws (M2.5x4) that secure the display assembly to the palm-rest and keyboard assembly.

10 Lift the display assembly from the palm-rest assembly.



Replacing the display assembly

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

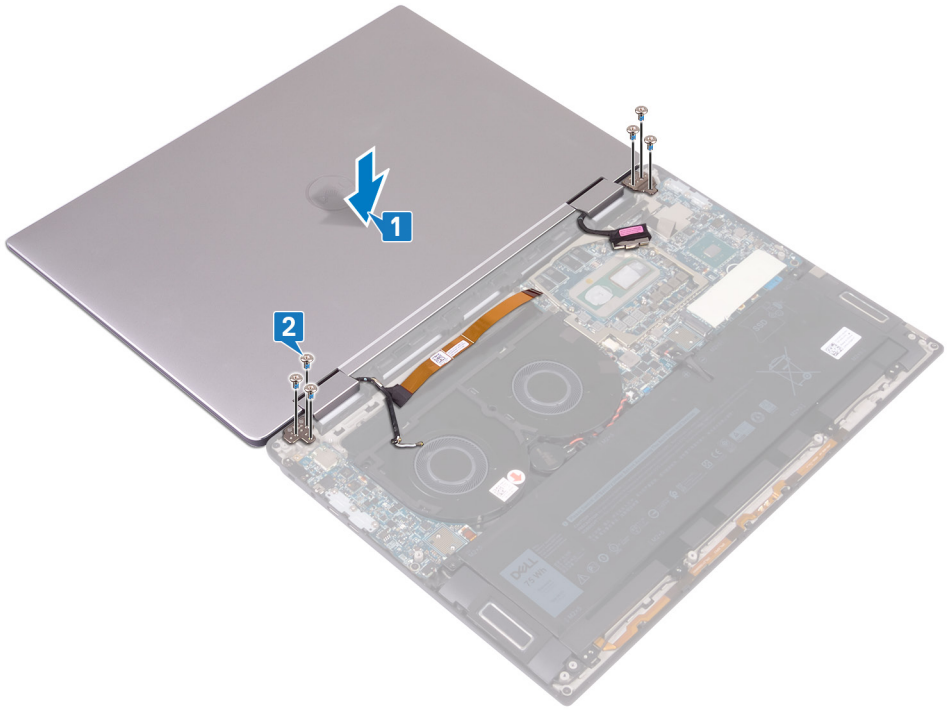
Topics:

- Procedure
- Post-requisites

Procedure

1 With the display screen facing down, align the screw holes on the display assembly with the screw holes on the palm-rest and keyboard assembly.

2 Replace the six screws (M2.5x4) that secure the display assembly to the palm-rest and keyboard assembly.



3 Close the display.

4 Connect the antenna cables to the I/O board.

5 Align the screw holes on the wireless-antenna bracket with the screw holes on the I/O board and replace the two screws (M2x4) that secure the bracket to the I/O board.

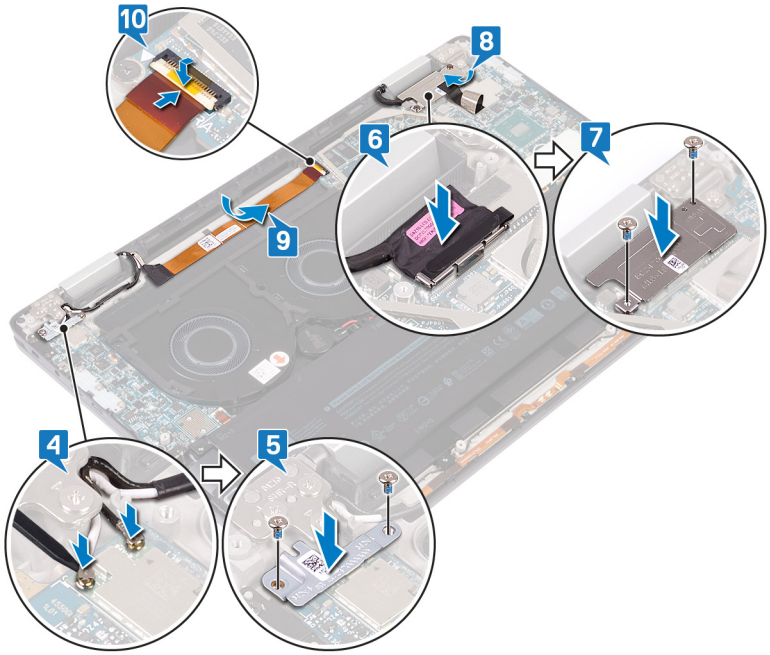
6 Connect the display cable to the system board and close the latch.

7 Align the screw holes on the display-cable bracket with the screw holes on the system board and replace the two screws (M1.6x1.8) that secure the bracket to the system board.

8 Adhere the tape that secures the display-cable bracket to the system board.

9 Adhere the camera cable to the palm-rest and keyboard assembly.

10 Connect the camera cable to the system board and close the latch.



Post-requisites

1 Replace the heat sink.

2 Replace the I/O-board interposers.

3 Replace the base cover.

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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:

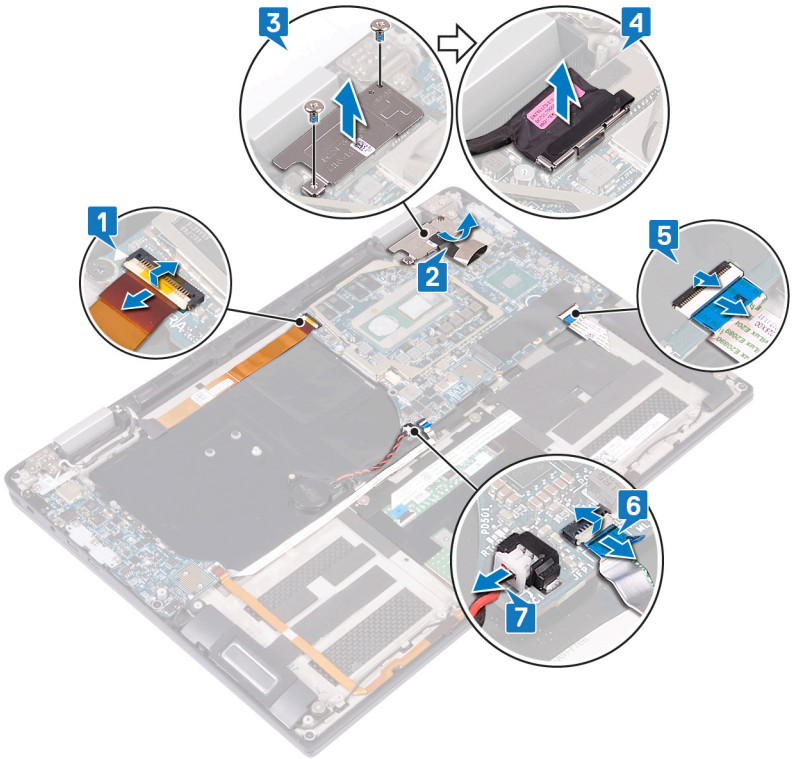
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the solid-state drive.
3 Remove the I/O-board interposers.
4 Remove the battery.
5 Remove the heat sink.
6 Remove the fans.

Procedure

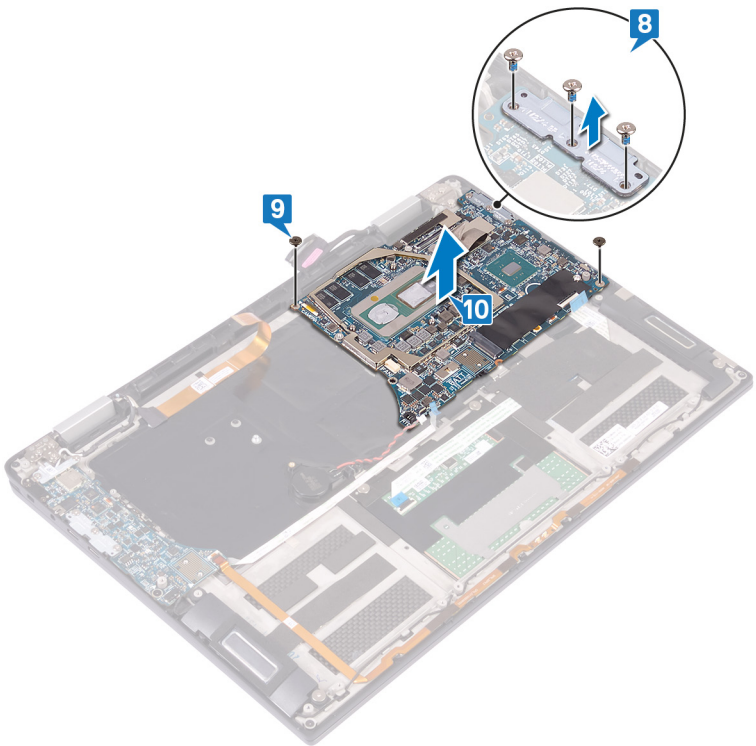
1 Open the latch and disconnect the camera cable from the system board.
2 Peel the tape that secures the display-cable bracket to the system board.
3 Remove the two screws (M1.6x1.8) that secure the display-cable bracket to the system board and lift the bracket off the system board.
4 Using the pull tab, disconnect the display cable from the system board.
5 Open the latch and disconnect the keyboard-back light cable from the system board.
6 Open the latch and disconnect the fingerprint-reader cable from the system board.
7 Disconnect the coin-cell battery cable from the system board.



8 Remove the three screws (M2x4) that secure the type-C USB bracket to system board and lift the bracket off the system board.

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

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



Replacing the system board

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

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

Topics:

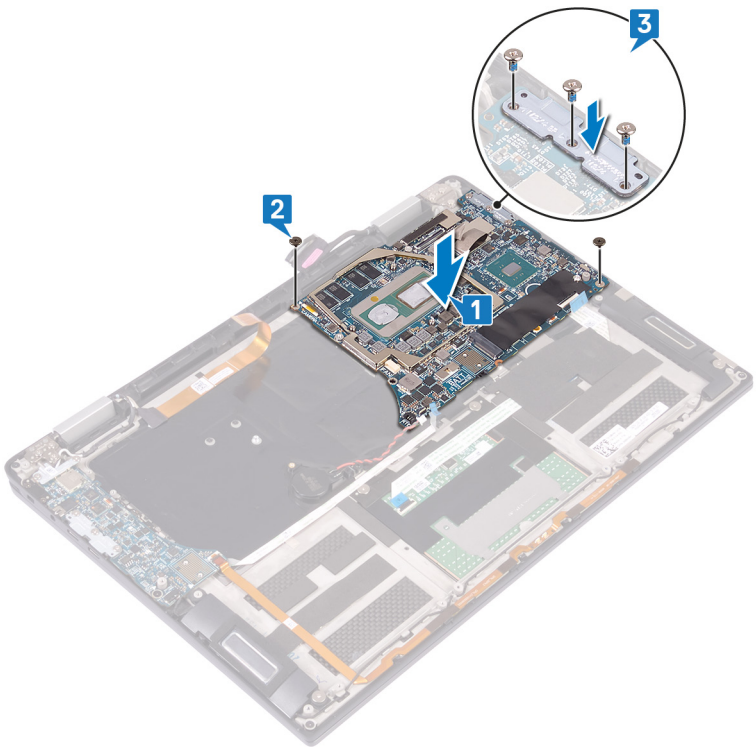
- Procedure
- Post-requisites
- Entering the Service Tag in the BIOS setup program

Procedure

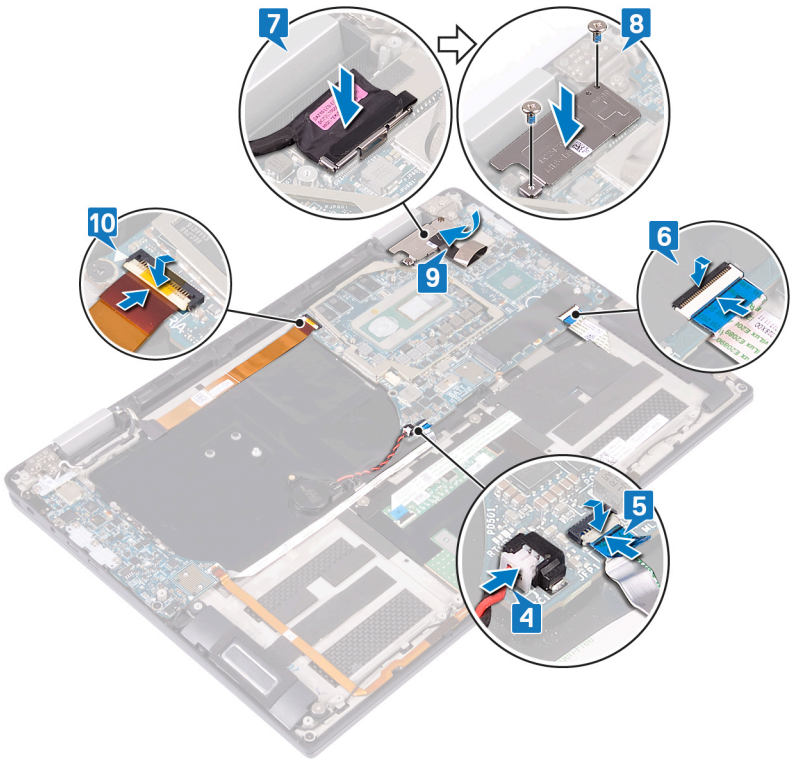
1 Using the alignment posts, place the system board on the palm-rest and keyboard assembly and align the screw holes on the system board with the screw holes on the palm-rest assembly.

2 Replace the 2 screws (M2x3) that secure the system board to the palm-rest and keyboard assembly.

3 Align the screw holes on the type-C USB bracket with the screw holes on the system board and replace the three screws (M2x4) that secure the type-C USB bracket to system board.



4 Connect the coin-cell battery cable to the system board.
5 Connect the fingerprint-reader cable to the system board and close the latch.
6 Connect the keyboard-back light cable to the system board and close the latch.
7 Connect the display cable to the system board.
8 Place the display-cable bracket on the system board and replace the two screws (M1.6x1.8) that secure the bracket to the system board.
9 Adhere the tape that secures the display-cable bracket to the system board.
10 Connect the camera cable to the system board and close the latch.



Post-requisites

1 Replace the fans.
2 Replace the heat sink.
3 Replace the battery.
4 Replace the I/O-board interposers.
5 Replace the solid-state drive.
6 Replace the base cover.

Entering the Service Tag in the BIOS setup program

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

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

Removing the palm-rest and keyboard assembly

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Topics:

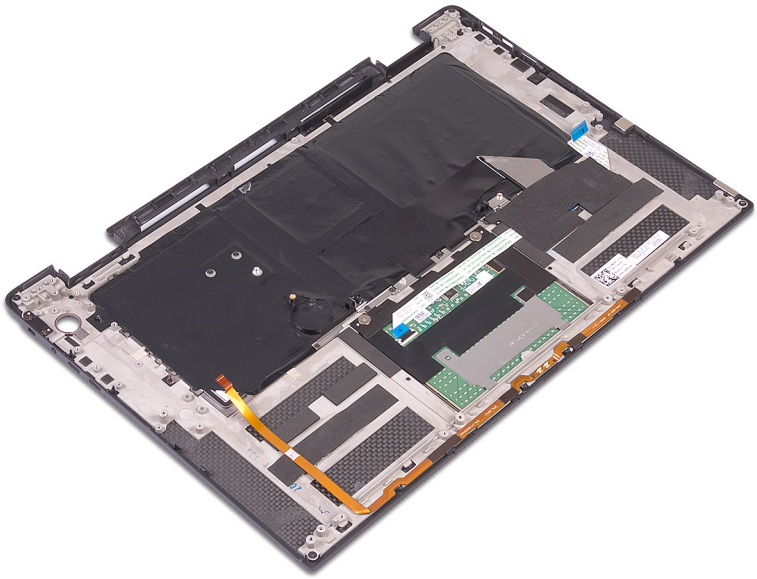
- Prerequisites
- Procedure

Prerequisites

1 Remove the base cover.
2 Remove the solid-state drive.
3 Remove the I/O-board interposers.
4 Remove the battery.
5 Remove the heat sink.
6 Remove the fans.
7 Remove the speakers.
8 Remove the coin-cell battery.
9 Remove the display assembly.
10 Remove the I/O board.
11 Remove the power button with fingerprint reader.
12 Remove the system board.

Procedure

After performing all the pre-requisites, we are left with the palm-rest and keyboard assembly.



Replacing the palm-rest and keyboard assembly

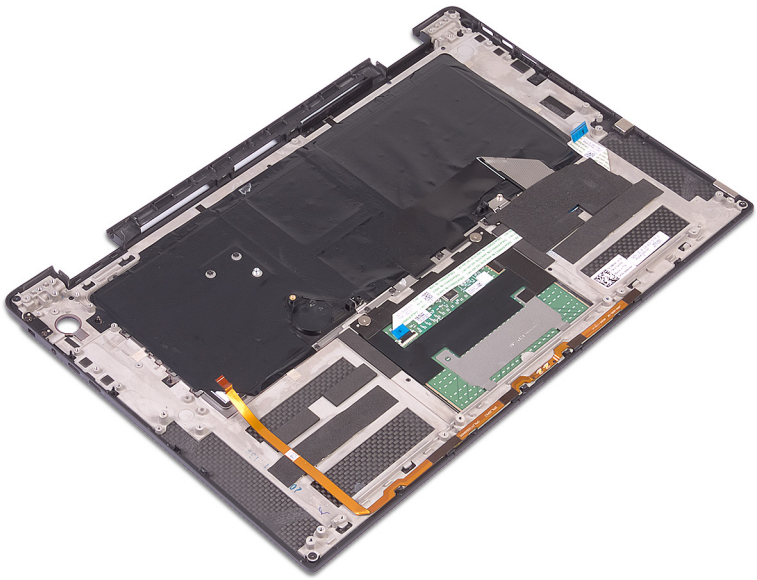
WARNING: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in Before working inside your computer. After working inside your computer, follow the instructions in After working inside your computer. For more safety best practices, see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

Topics:

- Procedure
- Post-requisites

Procedure

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



Post-requisites

1 Replace the system board.
2 Replace the power button with fingerprint reader.
3 Replace the I/O board.
4 Replace the display assembly.
5 Replace the coin-cell battery.
6 Replace the speakers.
7 Replace the fans.
8 Replace the heat sink.
9 Replace the battery.
10 Replace the I/O-board interposers.

11 Replace the solid-state drive.

12 Replace the base cover.

Downloading drivers

Downloading the audio 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 **Audio**.
6 Click **Download** to download the audio driver for your computer.
7 After the download is complete, navigate to the folder where you saved the audio driver file.
8 Double-click the audio driver file icon and follow the instructions on the screen to install the driver.

Table 2. Audio controller in device manager

Before installation	After installation
Audio inputs and outputs Speakers / Headphones (Realtek Audio)	Audio inputs and outputs Microphone Array (Realtek Audio) Speakers / Headphones (Realtek Audio)

Downloading the graphics 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 **Video**.
6 Click **Download** to download the graphics driver for your computer.
7 After the download is complete, navigate to the folder where you saved the graphics driver file.
8 Double-click the graphics driver file icon and follow the instructions on the screen to install the driver.

Downloading the USB 3.0 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 USB 3.0 driver for your computer.

7 After the download is complete, navigate to the folder where you saved USB 3.0 driver file.
8 Double-click the USB 3.0 driver file icon and follow the instructions on screen to install the driver.

Downloading the Wi-Fi driver

1 Turn on the 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 **Network**.
6 Click **Download** to download the Wi-Fi driver for your computer.
7 After the download is complete, navigate to the folder where you saved the Wi-Fi driver file.
8 Double-click the driver file icon and follow the instructions on the screen.

Downloading the media-card reader driver

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

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

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

Downloading the chipset driver

1 Turn on your computer.
2 Go to www.dell.com/support.
3 Click **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 appropriate chipset driver for your computer.
7 After the download is complete, navigate to the folder where you saved the chipset driver file.
8 Double-click the chipset driver file icon and follow the instructions on the screen to install the driver.

Downloading the network driver

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

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

4 Click **Drivers & downloads** > **Find it myself**.
5 Scroll down the page and expand **Network**.
6 Click **Download** to download the network driver for your computer.

7 Save the file, and after the download is complete, navigate to the folder where you saved the network driver file.

8 Double-click the network driver file icon and follow the instructions on screen.

System setup

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

Topics:

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

Boot Sequence

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

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

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

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

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

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

Navigation keys

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

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
Enter	Selects a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
Tab	Moves to the next focus area.

Keys	Navigation
	NOTE: For the standard graphics browser only.
Esc	Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

BIOS overview

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

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

Use the BIOS Setup program for the following purposes:

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

Entering BIOS setup program

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

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

Enabling or disabling the USB in BIOS setup program

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

Identifying the storage drive in BIOS setup program

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

Checking the system memory in BIOS setup program

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

The memory information is displayed on the right pane.

System setup options

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

Table 3. System setup options—System information menu

General-System Information	
System Information	
BIOS Version	Displays the BIOS version number.
Service Tag	Displays the Service Tag of the computer.
Asset Tag	Displays the Asset Tag of the computer.
Ownership Tag	Displays the ownership tag of the computer.
Manufacture Date	Displays the manufacture date of the computer.
Ownership Date	Displays the ownership date of the computer.
Express Service Code	Displays the express service code of the computer.
Memory Information	
Memory Installed	Displays the total computer memory installed.
Memory Available	Displays the total computer memory available.
Memory Speed	Displays the memory speed.
Memory Channel Mode	Displays single or dual channel mode.
Memory Technology	Displays the technology used for the memory.
DIMM A Size	Displays the DIMM A memory size.
DIMM B Size	Displays the DIMM B memory size.
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	
M.2 SATA	Displays the M.2 SATA SSD device information of the computer.
M.2 PCIe SSD-0	Displays the M.2 PCIe SSD information of the computer.
Video Controller	Displays the video controller type of the computer.
dGPU Video Controller	Displays the discrete graphics information of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.

General-System Information	
Video Memory	Displays the video memory information of the computer.
Panel Type	Displays the Panel Type of the computer.
Native Resolution	Displays the native resolution of the computer.
Audio Controller	Displays the audio controller information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Bluetooth Device	Displays the bluetooth device information of the computer.
Battery Information	Displays the battery health information.
Boot Sequence	
Boot Sequence	Displays the boot sequence.
Boot List Option	Displays the available boot options.
Advanced Boot Options	
Enable Legacy Option ROMs	Enable or disable the Legacy Option ROMs.
Enable Attempt Legacy Boot	Enable or disable Legacy Boot.
UEFI Boot Path Security	Enable or disable the system to prompt the user to enter the Admin password when booting a UEFI boot path from the F12 boot menu.
Date/Time	Displays the current date in MM/DD/YY format and current time in HH:MM:SS AM/PM format.

Table 4. System setup options—System Configuration menu

System Configuration	
SATA Operation	Configure operating mode of the integrated SATA hard drive controller.
Drives	Enable or disable various drives on board.
SMART Reporting	Enable or disable SMART Reporting during system startup.
USB Configuration	
Enable USB Boot Support	Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.
Enable External USB Port	Enable or disable booting from USB mass storage devices connected to external USB port.
USB PowerShare	Enable or disable users to charge external devices, such as phones and portable music players, using the stored system battery power through the USB PowerShare port on the notebook.
Audio	Enable or disable the integrated audio controller.
Keyboard Illumination	Enables you to choose the operating mode of the keyboard illumination feature.
Keyboard Backlight with AC Power	When the backlight is enabled, if Fn+F10 keys are pressed to disable the backlight, the backlight stays off regardless of AC state.
Miscellaneous Devices	Enable or disable various onboard devices.
Enable Camera	Enable or disable the camera.

Table 5. System setup options—Video menu

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

Table 6. System setup options—Security menu

Security	
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the system password.
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.
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.
Master Password Lockout	Disables the master password support. Hard Disk passwords need to be cleared before changing the setting.

Table 7. System setup options—Secure Boot menu

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

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

Intel Software Guard Extensions	
Intel SGX Enable	Enable or disable Intel Software Guard Extensions.
Enclave Memory Size	Set the Intel Software Guard Extensions Enclave Reserve Memory Size.
Performance	
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.

Intel Software Guard Extensions	
	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 power is supplied.
Enable Intel Speed Shift Technology	Enable or disable Intel Speed Shift Technology.
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.
Peak Shift	Enable or disable the minimal usage of AC power at times of peak demand.
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.
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.
Full Screen Logo	Enable or disable to display full screen logo.
Warnings and Errors	Configure the Warnings and Errors options which causes the boot process to pause when warnings or errors are detected, rather then stop, prompt and wait for user input.
Prompt on Warnings and Errors	Enable or disable Prompt on Warnings and Errors
Continue on Warnings	Enable or disable Continue on Warnings
Continue on Warnings and Errors	Enable or disable Continue on Warnings and Errors

Table 9. System setup options—Virtualization Support menu

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

Table 10. System setup options—Wireless menu

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

Table 11. System setup options—Maintenance menu

Maintenance	
Service Tag	Display the system's Service Tag.
Asset Tag	Create a system Asset Tag.
BIOS Downgrade	Control flashing of the system firmware to previous revisions.
BIOS Recovery	Enable the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.

Table 12. System setup options—System Logs menu

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

Table 13. System setup options—SupportAssist System Resolution menu

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

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System and setup password

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

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

CAUTION: The password features provide a basic level of security for the data on your computer.

CAUTION: Anyone can access the data stored on your computer if it is not locked and left unattended.

NOTE: System and setup password feature is disabled.

Topics:

- Assigning a system password and setup password
- Deleting or changing an existing system and or setup password
- Clearing CMOS settings
- Clearing forgotten passwords

Assigning a system password and setup password

You can assign a new **System Password** only when the status is in **Not Set**.

To enter the system setup, press F2 immediately after a power-on or re-boot.

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.
   - Only the following special characters are allowed: space, (”), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and a message prompts you to save the changes.
5. Press Y to save the changes.
   The computer reboots.

Deleting or changing an existing system and or setup password

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

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

1 In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
The **System Security** screen is displayed.
2 In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3 Select **System Password**, alter or delete the existing system password and press Enter or Tab.
4 Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

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

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

Clearing CMOS settings

1 Remove the base cover.
2 Remove the battery.
3 Remove the coin-cell battery.
4 Wait for one minute.
5 Replace the coin-cell battery.
6 Replace the battery.
7 Replace the base cover.

Clearing forgotten passwords

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

Troubleshooting

Flashing the BIOS

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

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

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

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

Flashing BIOS (USB key)

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

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

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

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

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

Enhanced Pre-Boot System Assessment (ePSA) diagnostics

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

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

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

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

For more information, see Dell EPSA Diagnostic 3.0.

Running the ePSA diagnostics

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

System diagnostic lights

Power and battery-status light

Indicates the power and battery-charge status.

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

Solid 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 power and battery-status light patterns and associated problems.

Table 14. Diagnostics

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

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

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

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

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

Flea power release

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

1 Turn off your computer.
2 Remove the base cover.
3 Press and hold the power button for 15 seconds to drain the flea power.
4 Replace the base cover.
5 Turn on your computer.

Wi-Fi power cycle

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

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

1 Turn off your computer.
2 Turn off the modem.
3 Turn off the wireless router.
4 Wait for 30 seconds.

5 Turn on the wireless router.

6 Turn on the modem.

7 Turn on your computer.

Getting help and contacting Dell

Self-help resources

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

Table 15. 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.