

Inspiron 7300

Service Manual



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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Working inside your computer

Before working inside your computer

About this task

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

Steps

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.

 **CAUTION:** To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.

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 to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that you have read the safety information that shipped with your computer.

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

 **WARNING:** Disconnect your computer from 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 your computer to an electrical outlet.

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

 **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the 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 is 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 it by its connector or its pull tab, not the cable itself. Some cables have connectors with locking tabs or thumbscrews that you must disengage before disconnecting the cable. When disconnecting cables, keep them evenly aligned to avoid bending the connector pins. When connecting cables, ensure that the ports and the connectors are correctly oriented and aligned.

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

 **NOTE:** The color of your computer and certain components may appear differently than shown in this document.

Electrostatic discharge—ESD protection

ESD is a major concern when you handle electronic components, especially sensitive components such as expansion cards, processors, memory DIMMs, and system boards. Very slight charges can damage circuits in ways that may not be obvious, such as intermittent problems or a shortened product life span. As the industry pushes for lower power requirements and increased density, ESD protection is an increasing concern.

Due to the increased density of semiconductors used in recent Dell products, the sensitivity to static damage is now higher than in previous Dell products. For this reason, some previously approved methods of handling parts are no longer applicable.

Two recognized types of ESD damage are catastrophic and intermittent failures.

- **Catastrophic** – Catastrophic failures represent approximately 20 percent of ESD-related failures. The damage causes an immediate and complete loss of device functionality. An example of catastrophic failure is a memory DIMM that has received a static shock and immediately generates a "No POST/No Video" symptom with a beep code emitted for missing or nonfunctional memory.
- **Intermittent** – Intermittent failures represent approximately 80 percent of ESD-related failures. The high rate of intermittent failures means that most of the time when damage occurs, it is not immediately recognizable. The DIMM receives a static shock, but the tracing is merely weakened and does not immediately produce outward symptoms related to the damage. The weakened trace may take weeks or months to melt, and in the meantime may cause degradation of memory integrity, intermittent memory errors, etc.

The more difficult type of damage to recognize and troubleshoot is the intermittent (also called latent or "walking wounded") failure.

Perform the following steps to prevent ESD damage:

- Use a wired ESD wrist strap that is properly grounded. The use of wireless anti-static straps is no longer allowed; they do not provide adequate protection. Touching the chassis before handling parts does not ensure adequate ESD protection on parts with increased sensitivity to ESD damage.
- Handle all static-sensitive components in a static-safe area. If possible, use anti-static floor pads and workbench pads.
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the anti-static packing material until you are ready to install the component. Before unwrapping the anti-static packaging, ensure that you discharge static electricity from your body.
- Before transporting a static-sensitive component, place it in an anti-static container or packaging.

ESD field service kit

The unmonitored Field Service kit is the most commonly used service kit. Each Field Service kit includes three main components: anti-static mat, wrist strap, and bonding wire.

Components of an ESD field service kit

The components of an ESD field service kit are:

- **Anti-Static Mat** – The anti-static mat is dissipative and parts can be placed on it during service procedures. When using an anti-static mat, your wrist strap should be snug and the bonding wire should be connected to the mat and to any bare metal on the system being worked on. Once deployed properly, service parts can be removed from the ESD bag and placed directly on the mat. ESD-sensitive items are safe in your hand, on the ESD mat, in the system, or inside a bag.
- **Wrist Strap and Bonding Wire** – The wrist strap and bonding wire can be either directly connected between your wrist and bare metal on the hardware if the ESD mat is not required, or connected to the anti-static mat to protect hardware that is temporarily placed on the mat. The physical connection of the wrist strap and bonding wire between your skin, the ESD

mat, and the hardware is known as bonding. Use only Field Service kits with a wrist strap, mat, and bonding wire. Never use wireless wrist straps. Always be aware that the internal wires of a wrist strap are prone to damage from normal wear and tear, and must be checked regularly with a wrist strap tester in order to avoid accidental ESD hardware damage. It is recommended to test the wrist strap and bonding wire at least once per week.

- **ESD Wrist Strap Tester** – The wires inside of an ESD strap are prone to damage over time. When using an unmonitored kit, it is a best practice to regularly test the strap prior to each service call, and at a minimum, test once per week. A wrist strap tester is the best method for doing this test. If you do not have your own wrist strap tester, check with your regional office to find out if they have one. To perform the test, plug the wrist-strap's bonding-wire into the tester while it is strapped to your wrist and push the button to test. A green LED is lit if the test is successful; a red LED is lit and an alarm sounds if the test fails.
- **Insulator Elements** – It is critical to keep ESD sensitive devices, such as plastic heat sink casings, away from internal parts that are insulators and often highly charged.
- **Working Environment** – Before deploying the ESD Field Service kit, assess the situation at the customer location. For example, deploying the kit for a server environment is different than for a desktop or portable environment. Servers are typically installed in a rack within a data center; desktops or portables are typically placed on office desks or cubicles. Always look for a large open flat work area that is free of clutter and large enough to deploy the ESD kit with additional space to accommodate the type of system that is being repaired. The workspace should also be free of insulators that can cause an ESD event. On the work area, insulators such as Styrofoam and other plastics should always be moved at least 12 inches or 30 centimeters away from sensitive parts before physically handling any hardware components
- **ESD Packaging** – All ESD-sensitive devices must be shipped and received in static-safe packaging. Metal, static-shielded bags are preferred. However, you should always return the damaged part using the same ESD bag and packaging that the new part arrived in. The ESD bag should be folded over and taped shut and all the same foam packing material should be used in the original box that the new part arrived in. ESD-sensitive devices should be removed from packaging only at an ESD-protected work surface, and parts should never be placed on top of the ESD bag because only the inside of the bag is shielded. Always place parts in your hand, on the ESD mat, in the system, or inside an anti-static bag.
- **Transporting Sensitive Components** – When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

ESD protection summary

It is recommended that all field service technicians use the traditional wired ESD grounding wrist strap and protective anti-static mat at all times when servicing Dell products. In addition, it is critical that technicians keep sensitive parts separate from all insulator parts while performing service and that they use anti-static bags for transporting sensitive components.

Transporting sensitive components

When transporting ESD sensitive components such as replacement parts or parts to be returned to Dell, it is critical to place these parts in anti-static bags for safe transport.

Lifting equipment

Adhere to the following guidelines when lifting heavy weight equipment:

 **CAUTION: Do not lift greater than 50 pounds. Always obtain additional resources or use a mechanical lifting device.**

1. Get a firm balanced footing. Keep your feet apart for a stable base, and point your toes out.
2. Tighten stomach muscles. Abdominal muscles support your spine when you lift, offsetting the force of the load.
3. Lift with your legs, not your back.
4. Keep the load close. The closer it is to your spine, the less force it exerts on your back.
5. Keep your back upright, whether lifting or setting down the load. Do not add the weight of your body to the load. Avoid twisting your body and back.
6. Follow the same techniques in reverse to set the load down.

After working inside your computer

About this task

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

Steps

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 and installing components

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

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver #0
- Phillips screwdriver #1
- Plastic scribe

Screw list

NOTE: When removing screws from a component, it is recommended to note the screw type, the quantity of screws, and then place them in a screw storage box. This is to ensure that the correct number of screws and correct screw type is restored when the component is replaced.

NOTE: Some computers have magnetic surfaces. Ensure that the screws are not left attached to such surfaces when replacing a component.

NOTE: Screw color may vary with the configuration ordered.

Table 1. Screw list

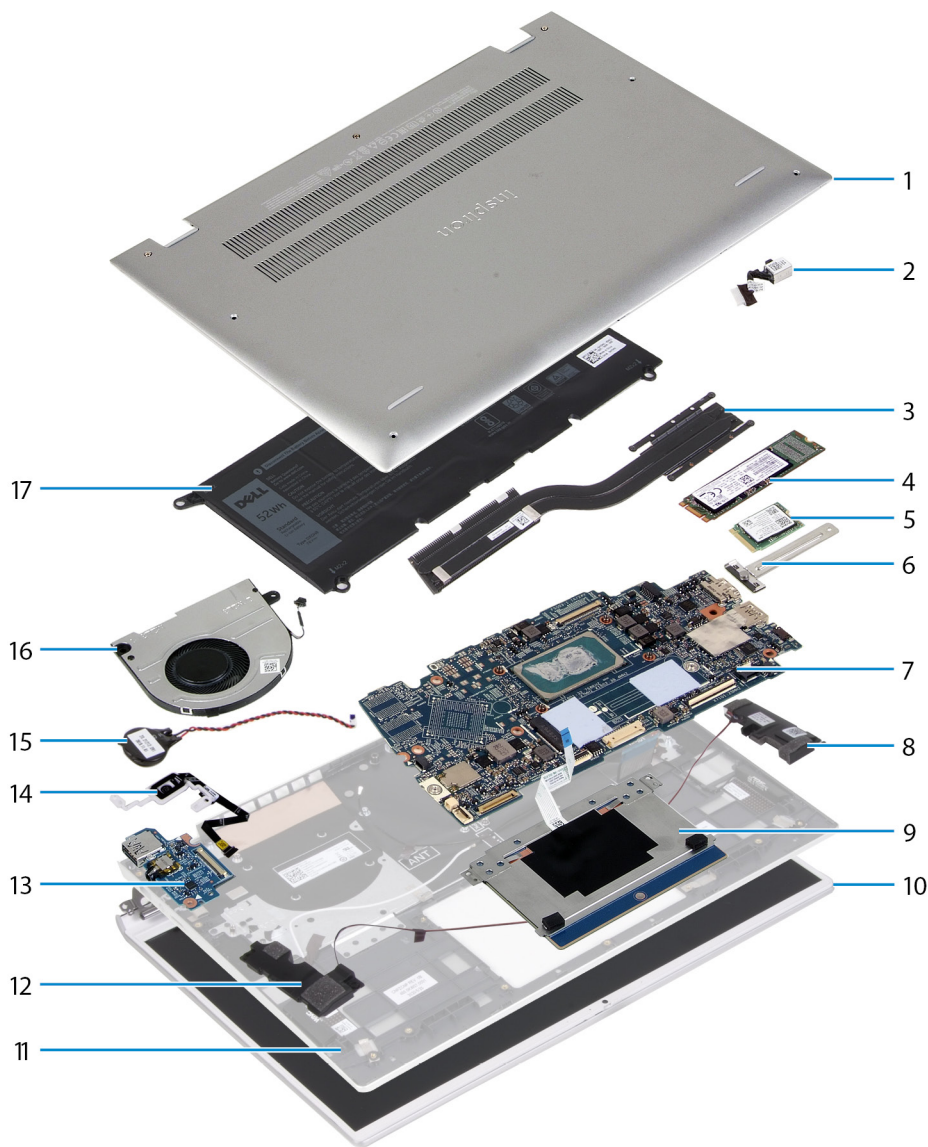
Component	Secured to	Screw type	Quantity	Screw image
Base cover	Palm-rest and keyboard assembly	M2x5	4	
Base cover	Palm-rest and keyboard assembly	M2x3.5+2.5 (captive)	3	
Battery	Palm-rest and keyboard assembly	M2x2.5	5	
M.2 2230 solid-state drive bracket	System board	M2x2.5	1	
M.2 2280 solid-state drive	System board	M2x2.5	1	
Heat sink	System board	Captive	• For computers without discrete graphics: 4 • For computers with discrete graphics: 7	
Fan	Palm-rest and keyboard assembly	M2x3	2	

Table 1. Screw list (continued)

Component	Secured to	Screw type	Quantity	Screw image
Display assembly	Palm-rest and keyboard assembly	M2x4	6	
Power-adaptor port	Palm-rest and keyboard assembly	M2x3	1	
Touchpad bracket	Palm-rest and keyboard assembly	M1.2x1.5	3	
Touchpad bracket	Palm-rest and keyboard assembly	M1.2x1.8	2	
I/O board	Palm-rest and keyboard assembly	M2x3	1	
Power-button board	Palm-rest and keyboard assembly	M2x3	3	
Power-button with optional fingerprint reader	Palm-rest and keyboard assembly	M2x3	2	
Wireless-card bracket	System board	M2x3	1	
System board	Palm-rest and keyboard assembly	M2x2	3	

Major components of Inspiron 7300

The following image shows the major components of Inspiron 7300.



1. base cover
2. power-adaptor port
3. heat sink
4. M.2 2280 solid-state drive
5. M.2 2230 solid-state drive
6. M.2 2230 solid-state drive bracket
7. system board
8. right speaker
9. touchpad
10. display assembly
11. palm-rest and keyboard assembly
12. left speaker
13. I/O board
14. power-button with optional fingerprint reader
15. coin-cell battery
16. fan
17. battery

NOTE: Dell provides a list of components and their part numbers for the original system configuration purchased. These parts are available according to warranty coverages purchased by the customer. Contact your Dell sales representative for purchase options.

Base cover

Removing the base cover

Prerequisites

1. Follow the procedure in [Before working inside your computer.](#)

About this task

NOTE: Before removing the base cover, ensure that there is no micro-SD card installed in the micro-SD card slot on your computer.

The following images indicate the location of the base cover and provides a visual representation of the removal procedure.

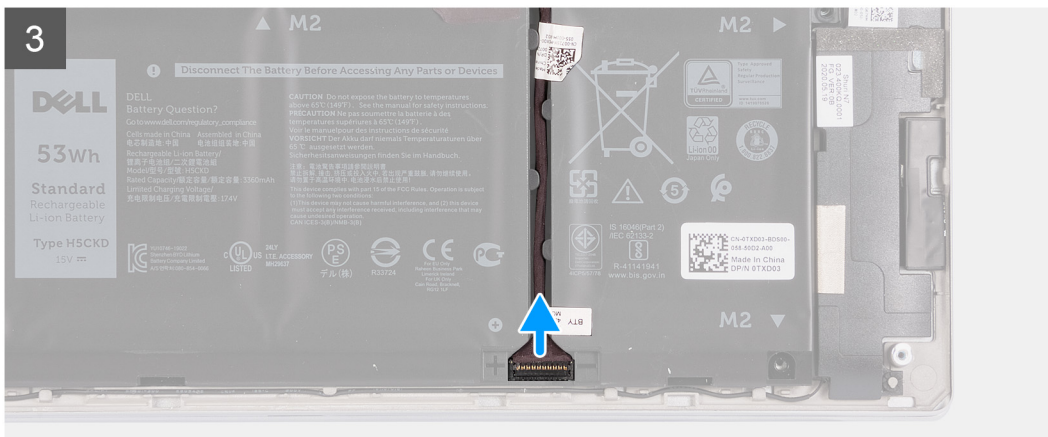
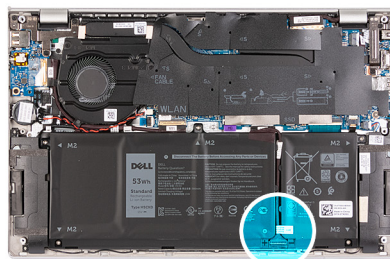


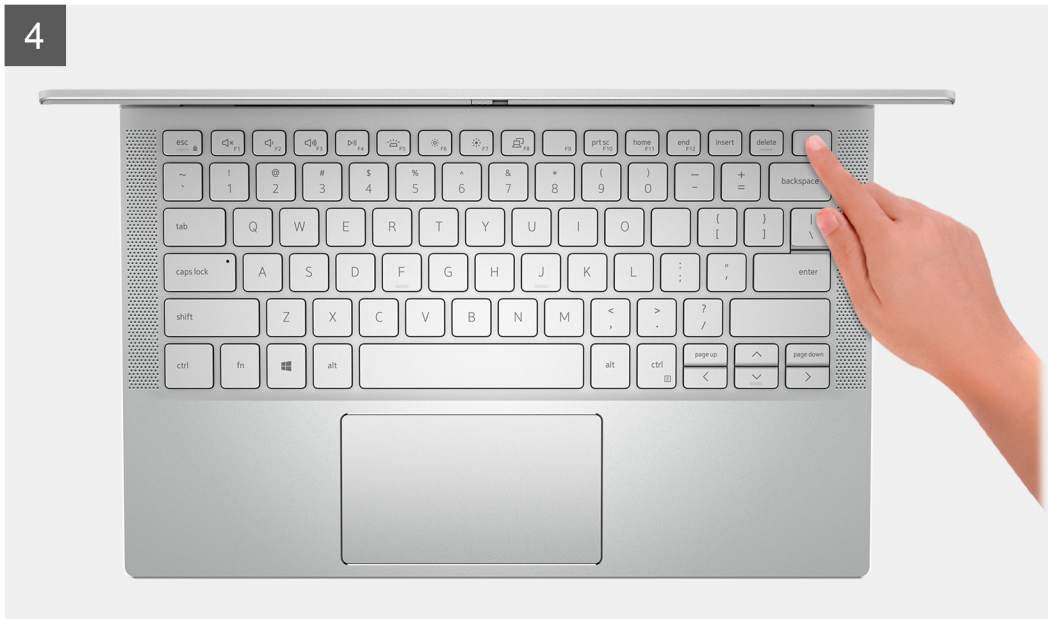
3x
M2x3.5+2.5



4x
M2x5







Steps

1. Remove the four screws (M2x5) that secure the base cover to the palm-rest and keyboard assembly.
2. Loosen the three captive screws.
3. Using a plastic scribe, pry the base cover from the middle and continue to work on the sides to open the base cover.
4. Lift and slide the base cover off the palm-rest and keyboard assembly.
5. Disconnect the battery cable from the battery.
6. Press and hold the power button for 15 seconds to ground the computer and drain the flea power.

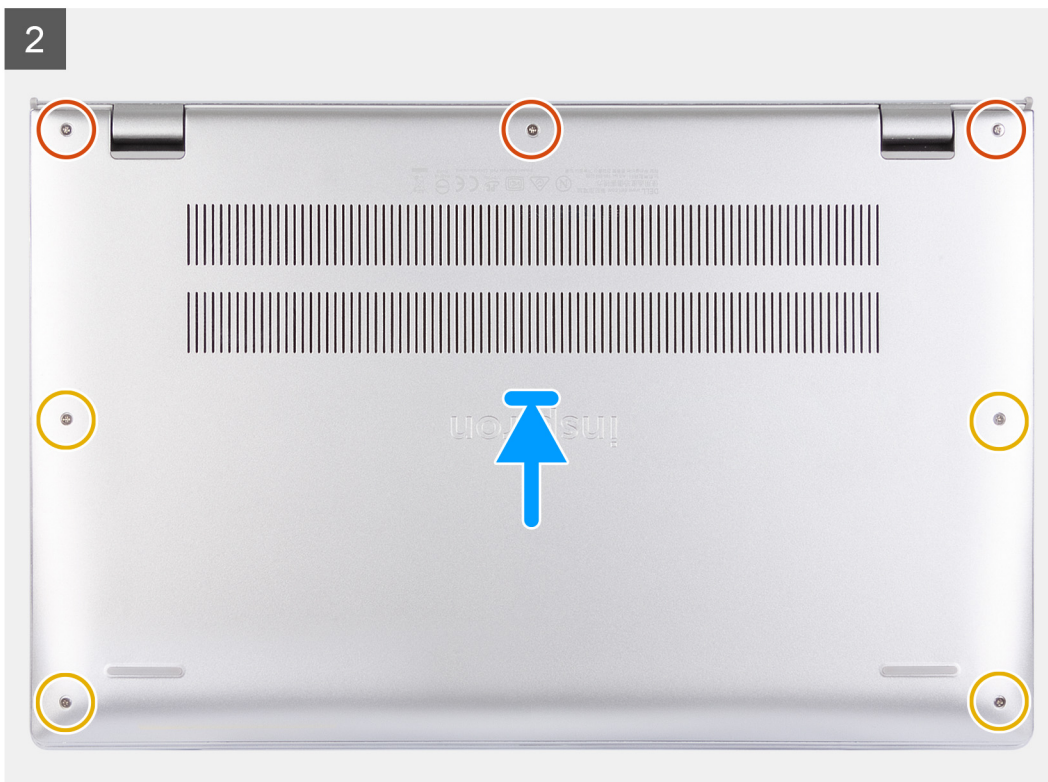
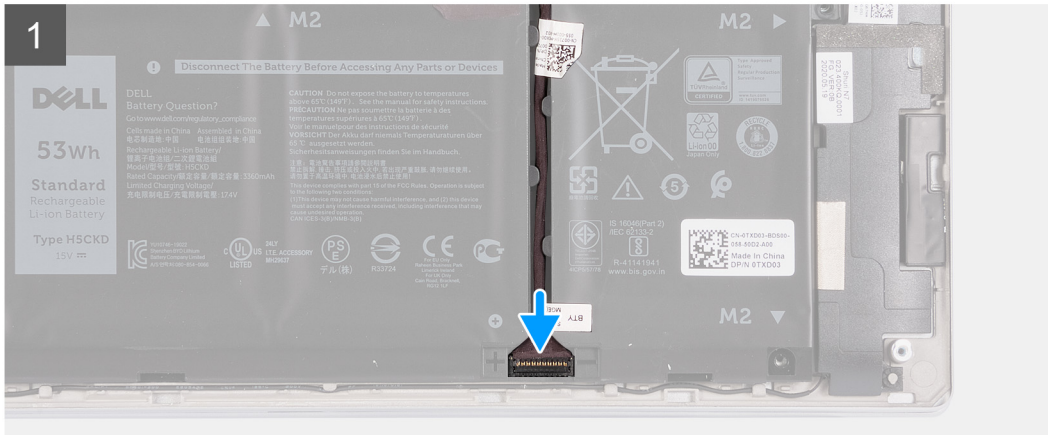
Installing the base cover

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the base cover and provides a visual representation of the installation procedure.



Steps

1. Connect the battery cable to the connector on the battery.
2. Place and snap the base cover into place on the palm-rest and keyboard assembly.
3. Tighten the three captive screws on the base cover.
4. Replace the four screws (M2x5) that secure the base cover to the palm-rest and keyboard assembly.

Next steps

1. Follow the procedure in [After working inside your computer](#).

Battery

Lithium-ion battery precautions

CAUTION:

- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery completely before removing it. Disconnect the AC power adapter from the system and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any kind to pry on or against the battery.
- Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other system components.
- If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a lithium-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See www.dell.com/contactdell.
- Always purchase genuine batteries from www.dell.com or authorized Dell partners and resellers.

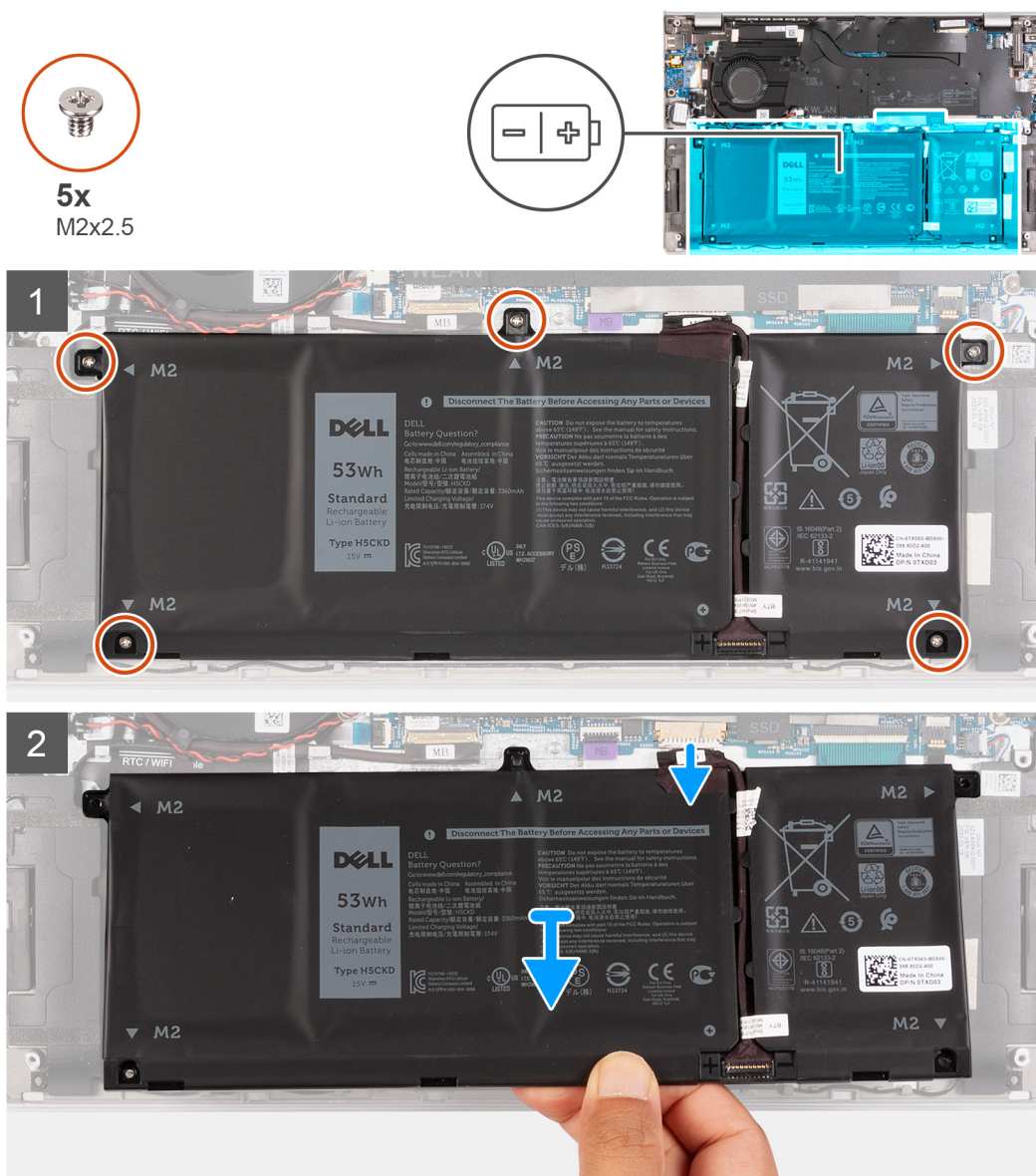
Removing the battery

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

The following images indicate the location of the battery and provides a visual representation of the removal procedure.



Steps

1. Remove the five screws (M2x2.5) that secure the battery to the palm-rest and keyboard assembly.
2. Disconnect the battery cable from the system board.
3. Lift the battery off the palm-rest and keyboard assembly.

Installing the battery

Prerequisites

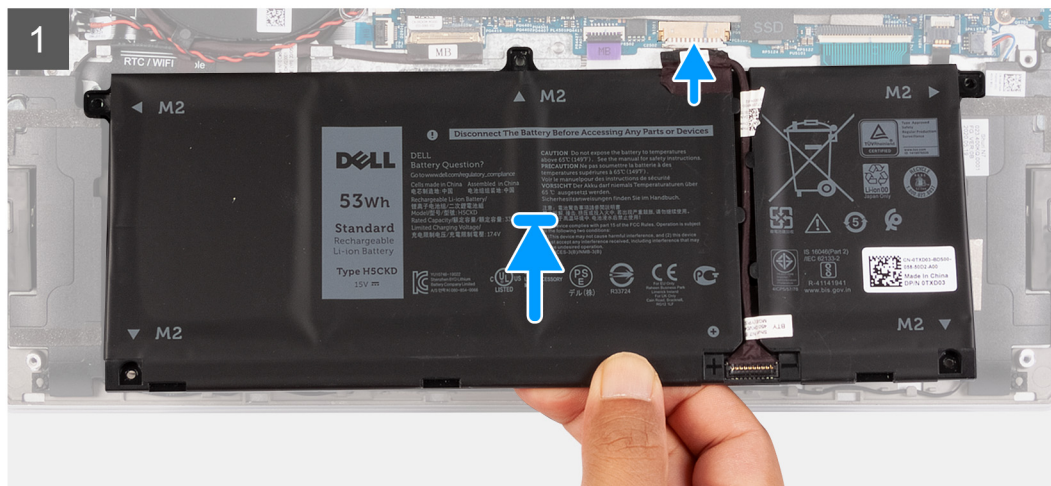
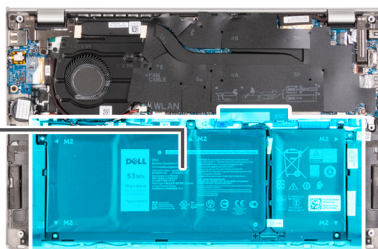
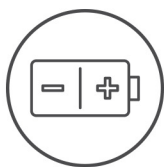
If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the battery and provides a visual representation of the installation procedure.



5x
M2x2.5



Steps

1. Place the battery on the palm-rest and keyboard assembly.
2. Connect the battery cable to the connector on the system board.
3. Align the screw holes on the battery to the screw holes on the palm-rest and keyboard assembly.
4. Replace the five screws (M2x2.5) that secure the battery to the palm-rest and keyboard assembly.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Solid-state drive

Removing the M.2 2230 solid-state drive

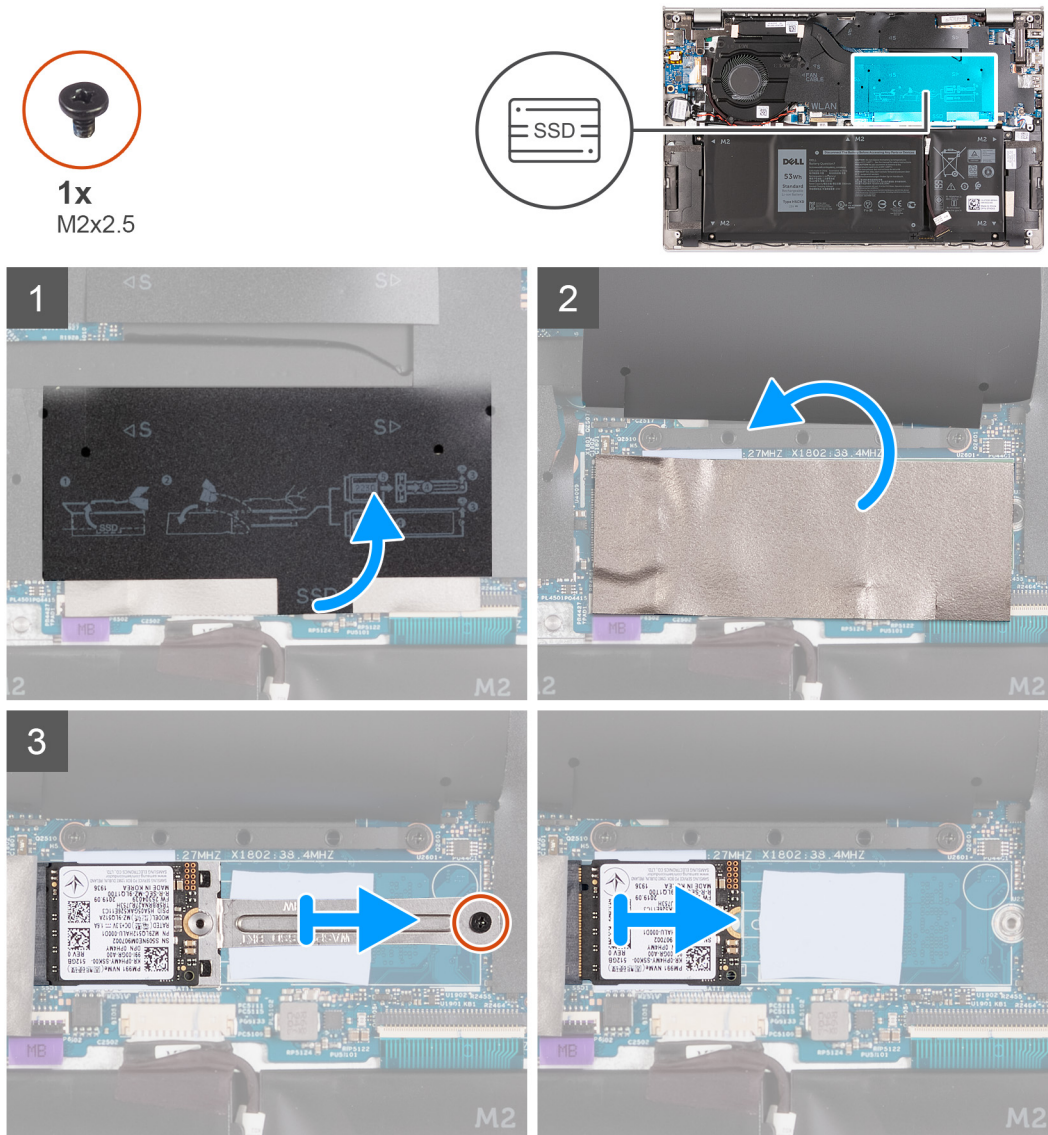
Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

- NOTE:** This procedure applies only to computers shipped with an M.2 2230 solid-state drive installed.
- NOTE:** The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:
- M.2 2230 solid-state drive + 2230 mounting bracket
 - M.2 2280 solid-state drive

The following images indicate the location of the M.2 2230 solid-state drive and provides a visual representation of the removal procedure.



Steps

1. Peel the Mylar that covers the system board.
2. Peel the thermal tape that covers the M.2230 solid-state drive and bracket.
3. Remove the screw (M2x2.5) that secures the M.2 2230 bracket to the system board.
4. Slide and lift the M.2 2230 bracket off the system board.
5. Slide and lift the M.2 2230 solid-state drive off the system board.

Installing the M.2 2230 solid-state drive

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

NOTE: This procedure applies if you are installing a M.2 2230 solid-state drive.

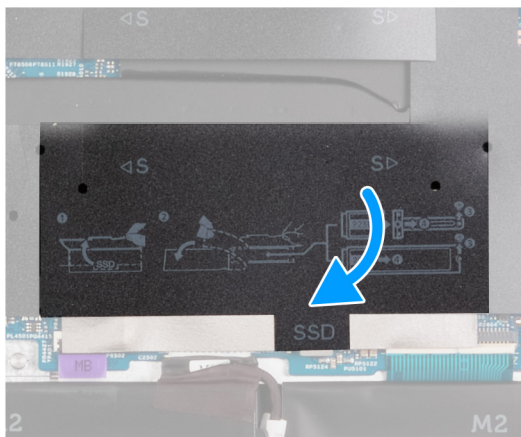
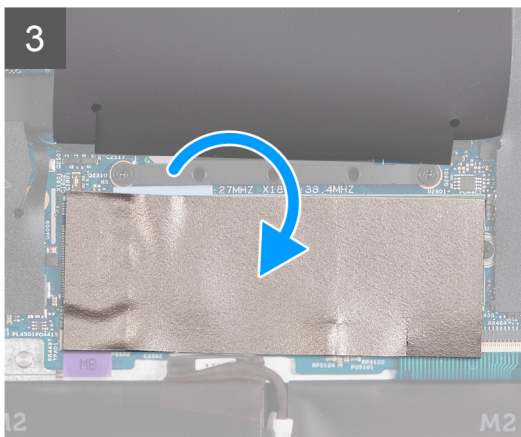
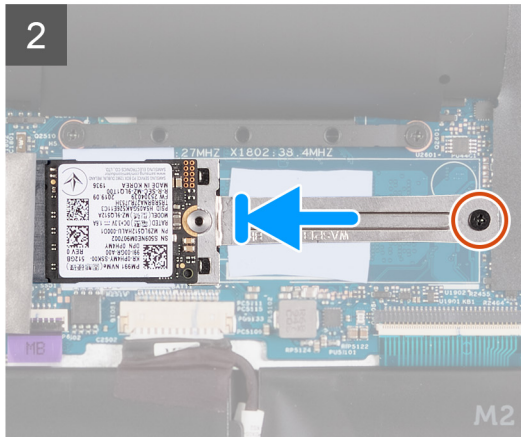
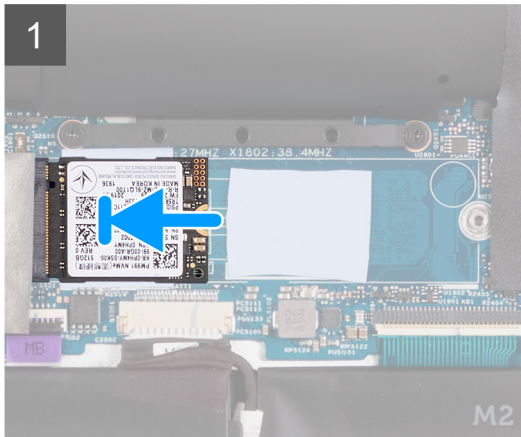
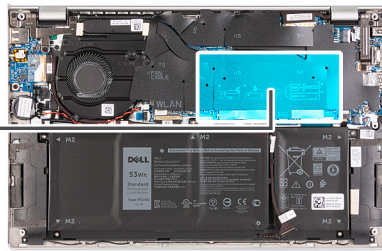
NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2230 solid-state drive and provides a visual representation of the installation procedure.



1x
M2x2.5



Steps

1. Align the notch on the M.2 2230 solid-state drive with the tab on the M.2 card slot on the system board.
2. Slide the M.2 2230 solid-state drive into the M.2 card slot on the system board.
3. Place and slide the M.2 2230 bracket on the system board, aligning the notch on the M.2 2230 bracket to the groove on the M.2 2230 solid-state drive.
4. Replace the screw (M2x2.5) that secures the M.2 2230 bracket to the system board.
5. Adhere the thermal tape over the M.2 2230 solid-state drive and bracket.
6. Adhere the Mylar that covers the system board.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Removing the M.2 2280 solid-state drive

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

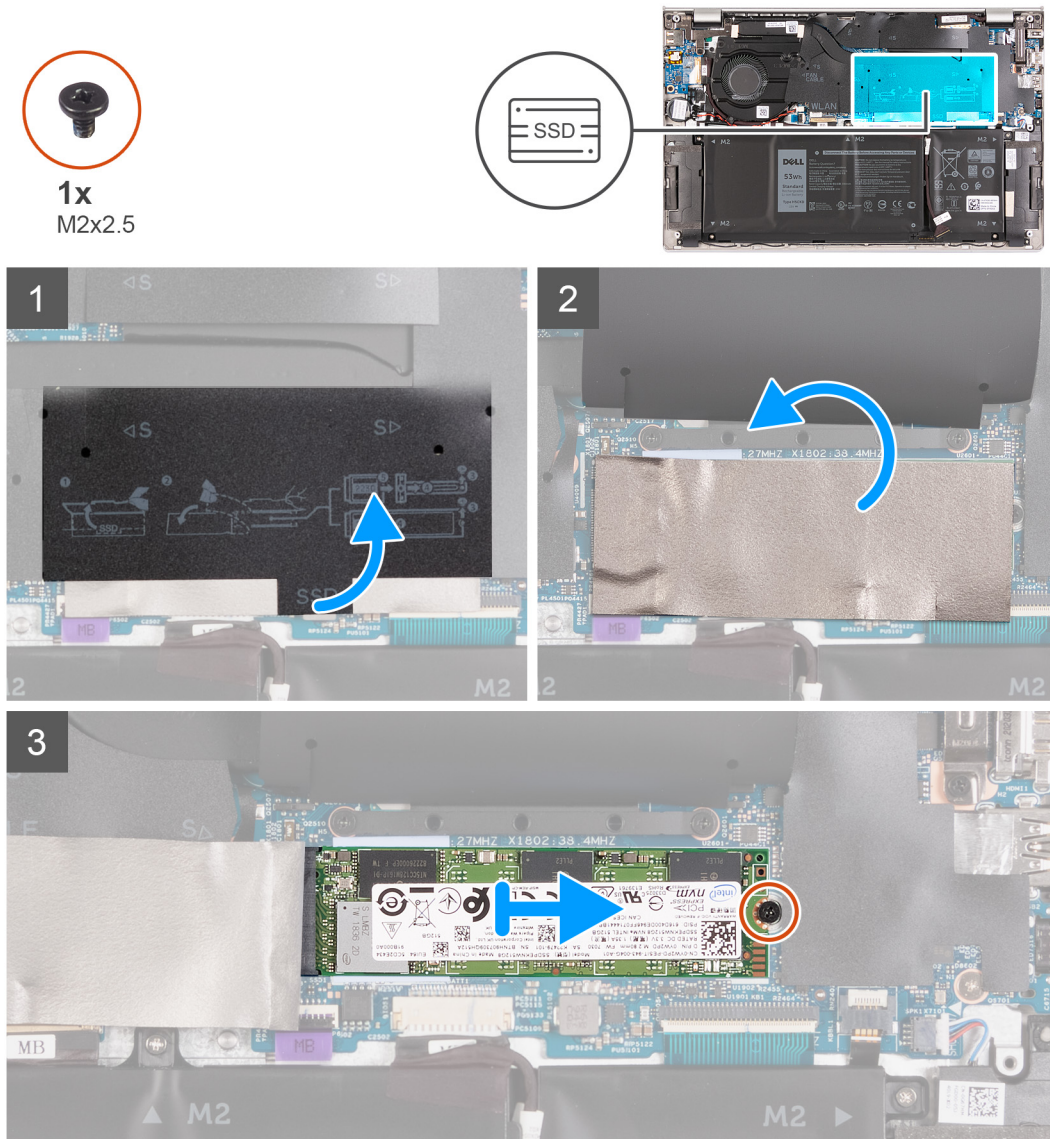
About this task

NOTE: This procedure applies only to computers shipped with a M.2 2280 solid-state drive installed.

NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2280 solid-state drive and provides a visual representation of the removal procedure.



Steps

1. Peel the Mylar that covers the system board.
2. Peel the thermal tape that covers the M.2 2280 solid-state drive.
3. Remove the screw (M2x2.5) that secures the M.2 2280 solid-state drive to the palm-rest and keyboard assembly.
4. Slide and remove the M.2 2280 solid-state drive from the M.2 card slot on the system board.

Installing the M.2 2280 solid-state drive

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

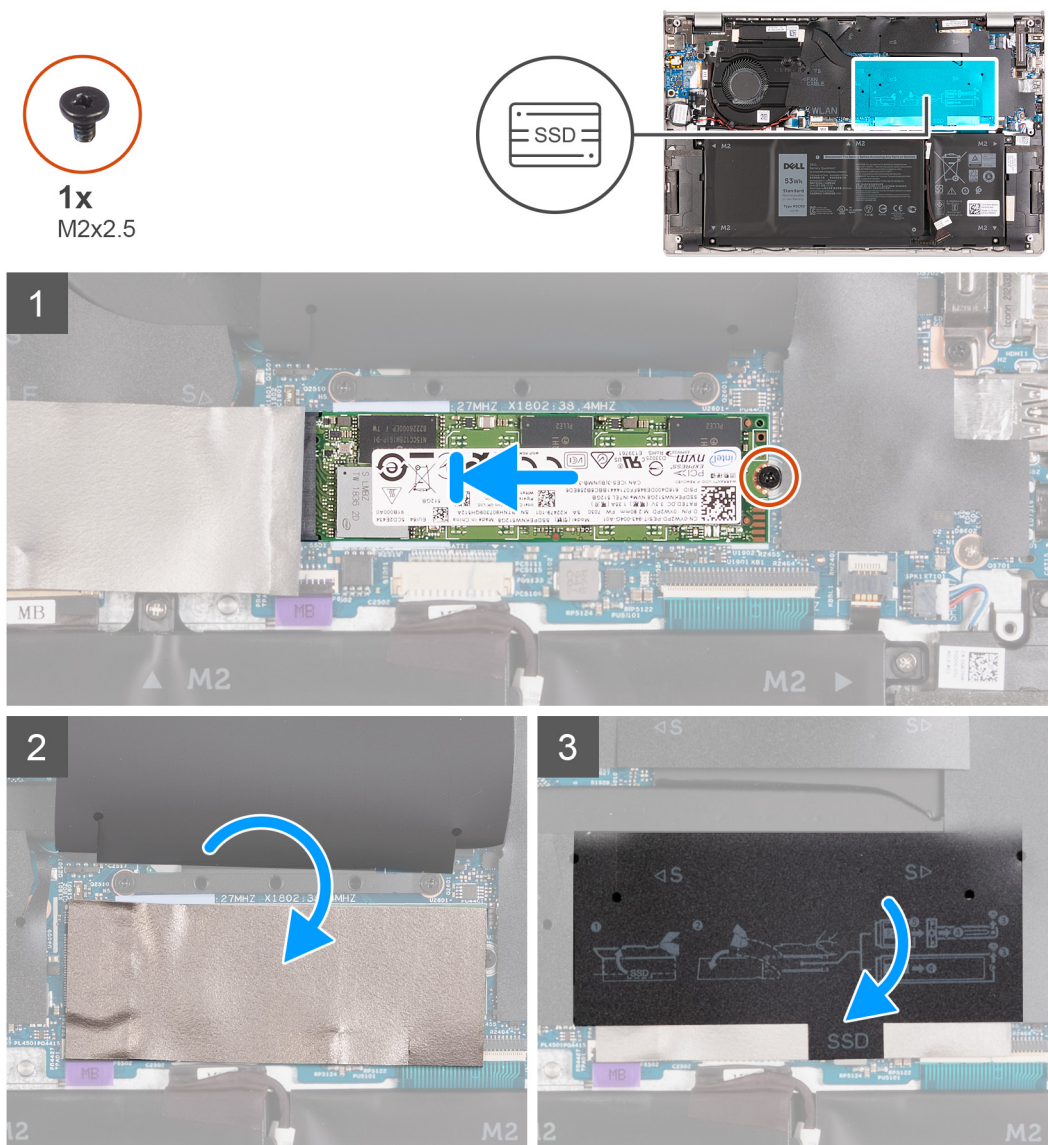
About this task

NOTE: This procedure applies if you are installing a M.2 2280 solid-state drive.

NOTE: The M.2 card installed on your computer will depend on the configuration ordered. Supported card configurations on the M.2 card slot:

- M.2 2230 solid-state drive + 2230 mounting bracket
- M.2 2280 solid-state drive

The following images indicate the location of the M.2 2280 solid-state drive and provides a visual representation of the installation procedure.



Steps

1. Align the notch on the M.2 2280 solid-state drive with the tab on the M.2 card slot on the system board.
2. Slide the M.2 2280 solid-state drive into the M.2 card slot on the system board.

3. Replace the screw (M2x2.5) that secures the M.2 2280 solid-state drive to the palm-rest and keyboard assembly.
4. Adhere the thermal tape that covers the M.2 2280 solid-state drive.
5. Adhere the Mylar over the system board.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Heat sink

Removing the heat sink

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

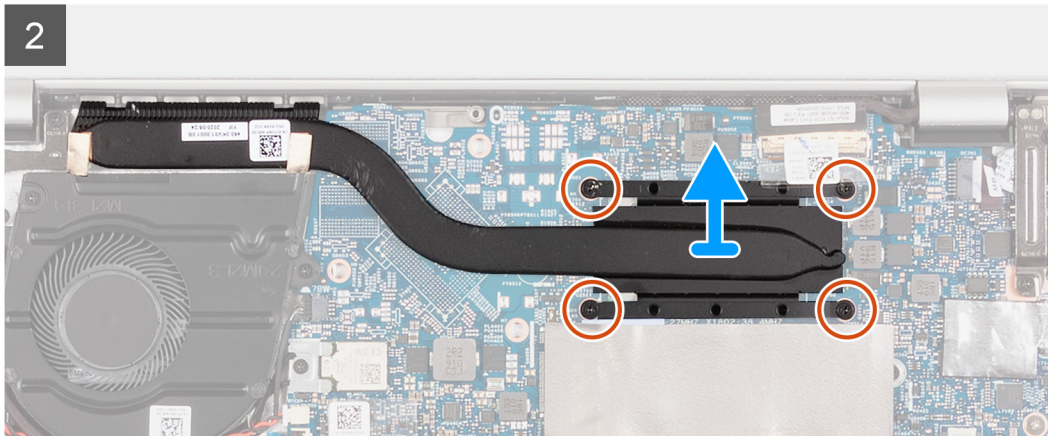
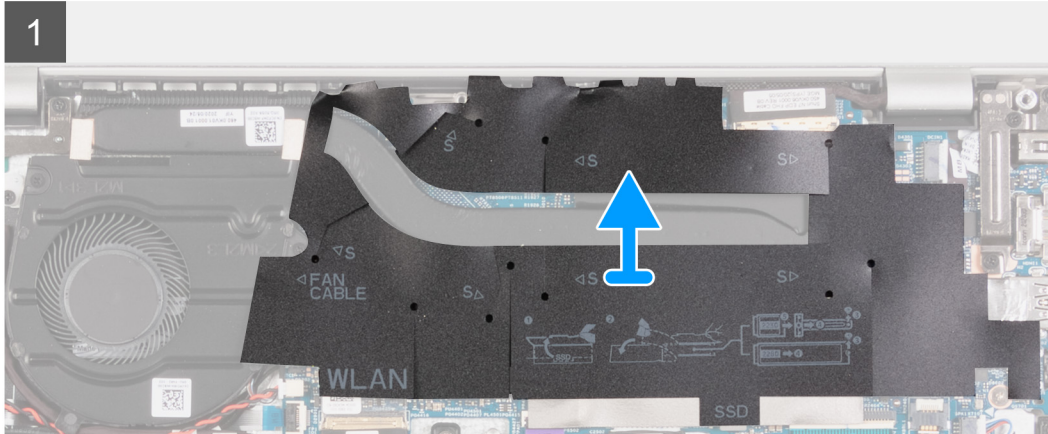
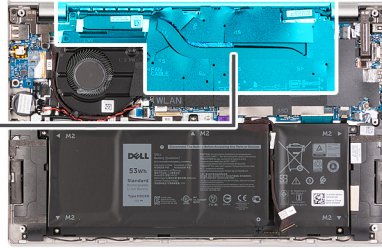
 **CAUTION:** The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

 **NOTE:** 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.

The following images indicate the location of the heat sink and provides a visual representation of the removal procedure.



4x



Steps

1. Peel the Mylar that covers the system board.

NOTE: The number of screws varies depending on the configuration ordered.

2. In reverse sequential order (4>3>2>1) loosen the four captive screws that secure the heat sink to the system board.
3. Lift the heat sink from the system board.

Installing the heat sink

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

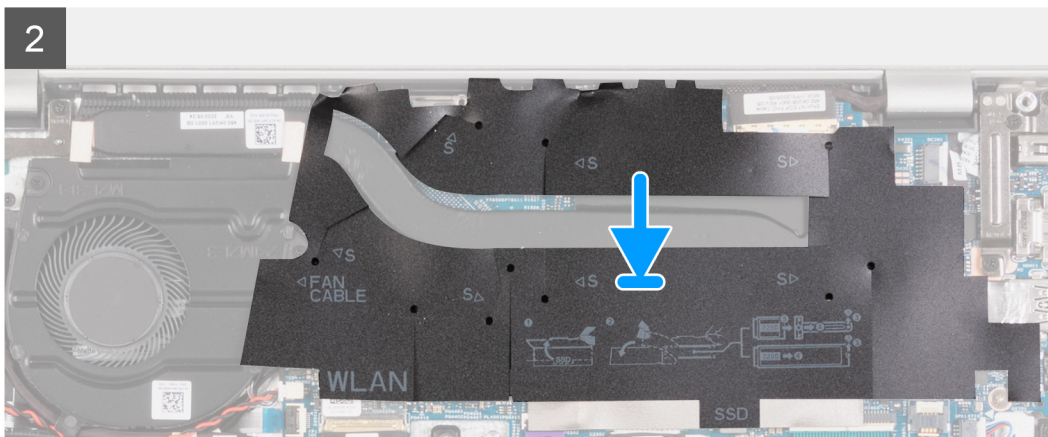
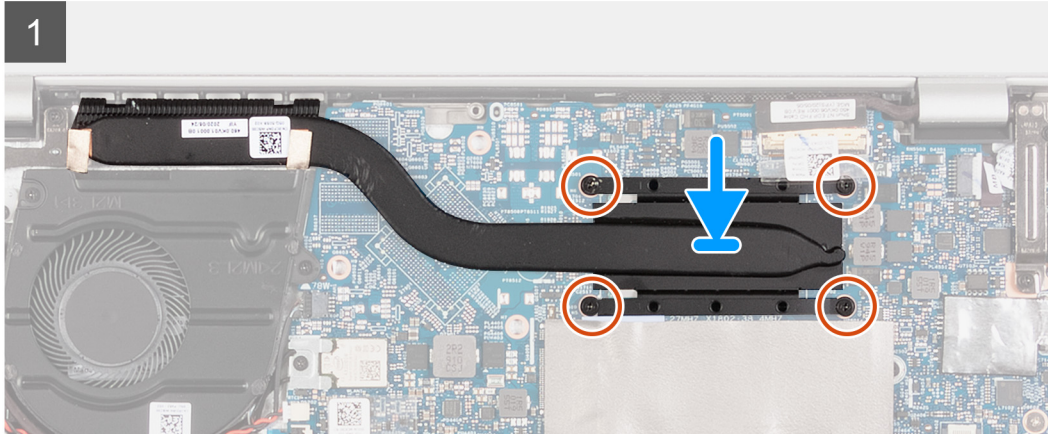
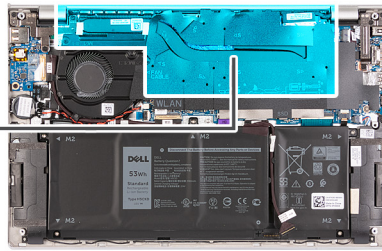
About this task

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

The following images indicate the location of the heat sink and provides a visual representation of the installation procedure.



4x



Steps

1. Place the heat sink on the system board.
2. In sequential order (1>2>3>4) tighten the four captive screws that secure the heat sink to the system board.

i **NOTE:** The number of screws varies depending on the configuration ordered.

3. Adhere the Mylar over the system board.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Fan

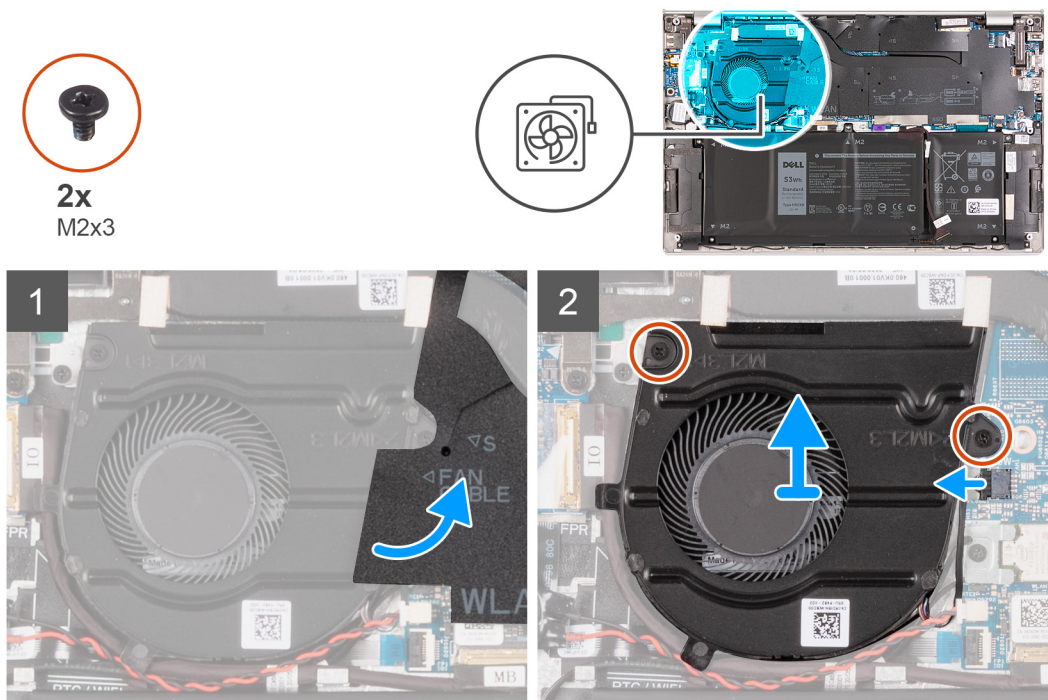
Removing the fan

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

The following images indicate the location of the fan and provides a visual representation of the removal procedure.



Steps

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

Installing the fan

Prerequisites

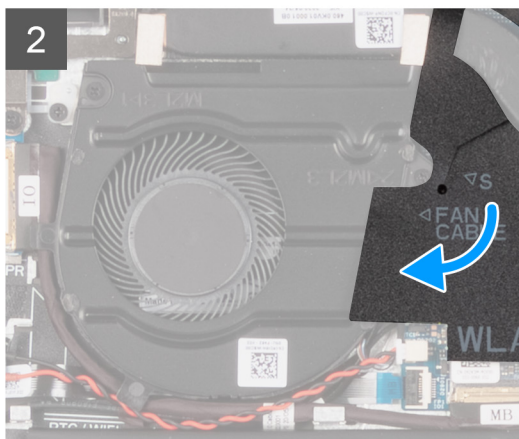
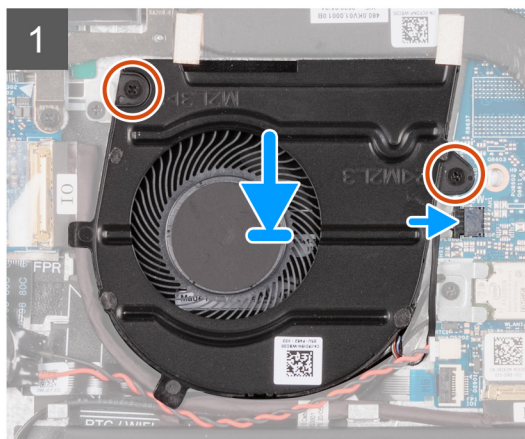
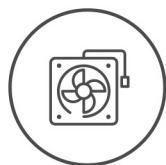
If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the fan and provides a visual representation of the installation procedure.



2x
M2x3



Steps

1. Place the fan on the palm-rest and keyboard assembly.
2. Align the screw holes on the fan to the screw holes on the palm-rest and keyboard assembly.
3. Replace the two screws (M2x3) that secure the fan to the palm-rest and keyboard assembly.
4. Connect the fan cable to the connector on the system board.
5. Adhere the Mylar over the system board.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Speakers

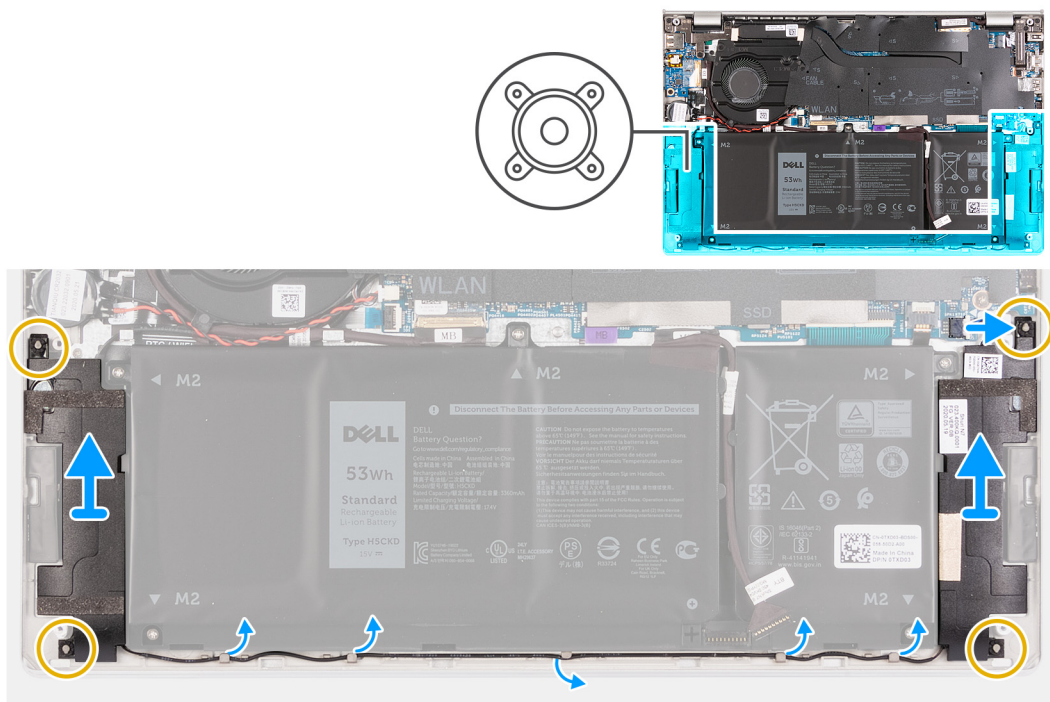
Removing the speakers

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

The following images indicate the location of the speakers and provides a visual representation of the removal procedure.



Steps

1. Disconnect the speaker cable from the system board.
2. Lift the right speaker from the palm-rest and keyboard assembly.
3. Remove the speaker cable from the routing guides on the palm-rest and keyboard assembly.
4. Lift the speakers along with its cable off the palm-rest and keyboard assembly.

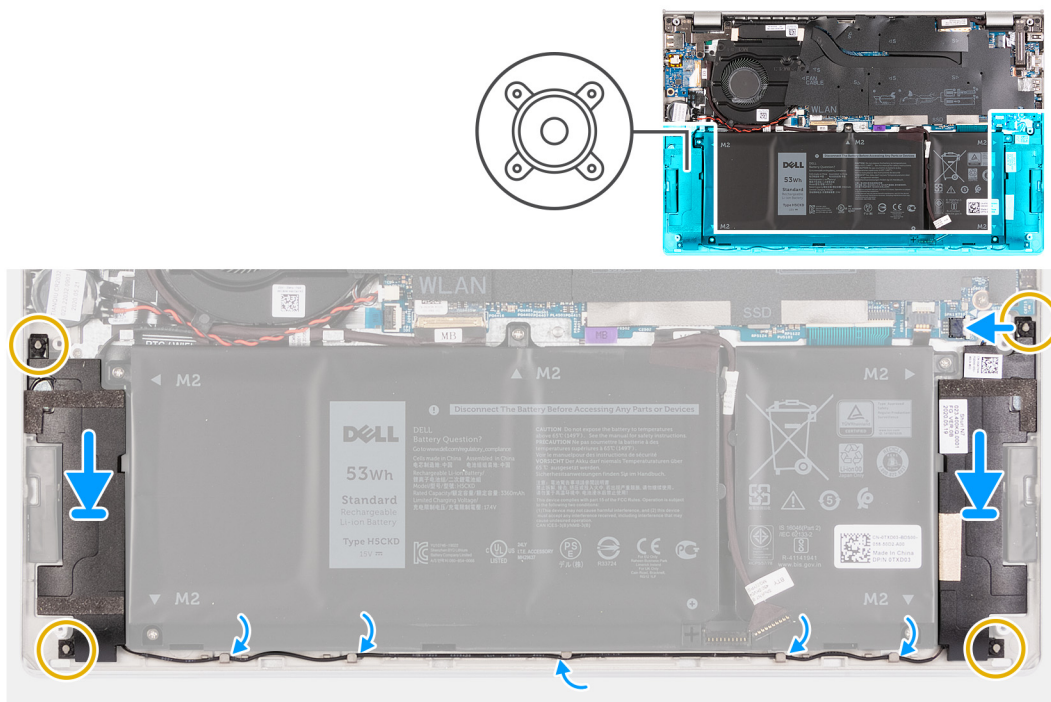
Installing the speakers

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the speakers and provides a visual representation of the installation procedure.



Steps

1. Using the alignment posts, place the left speaker on the palm-rest and keyboard assembly.
i **NOTE:** Ensure that the alignment posts are threaded through the rubber grommets on the speaker.
2. Route the speaker cable through the routing guides on the palm-rest and keyboard assembly.
3. Using the alignment posts, place the right speaker on the palm-rest and keyboard assembly.
i **NOTE:** Ensure that the alignment posts are threaded through the rubber grommets on the speaker.
4. Connect the speaker cable to the connector on the system board.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Display assembly

Removing the display assembly

Prerequisites

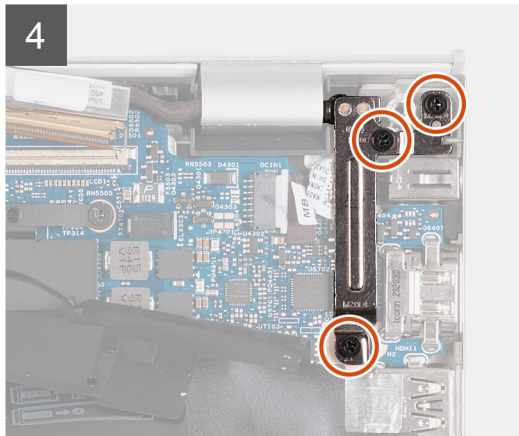
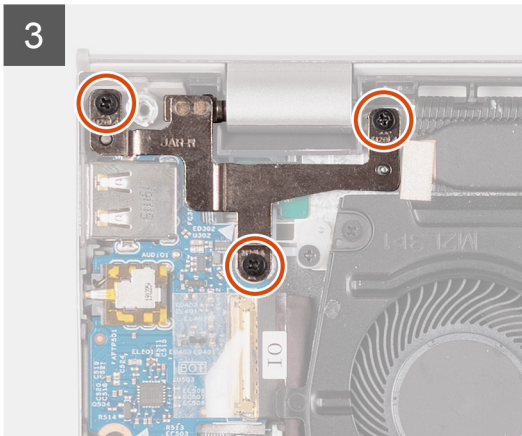
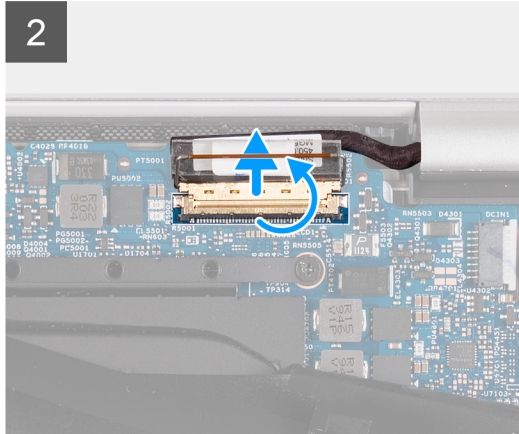
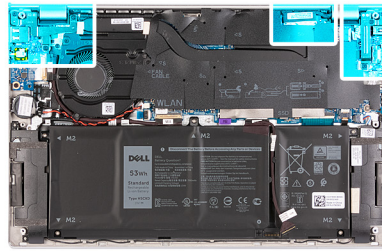
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

The following images indicate the location of the display assembly and provides a visual representation of the removal procedure.



6x
M2x4





Steps

1. Peel the Mylar off the system board.
2. Peel the tape that secures the display-cable latch to the system board.
3. Lift the latch and disconnect the display cable from the system board.
4. Remove the three screws (M2x4) that secure the left-display hinge to the palm-rest and keyboard assembly.
5. Pry open the left-display hinge.
6. Remove the three screws (M2x4) that secure the right-display hinge to the palm-rest and keyboard assembly.
7. Pry open the right-display hinge.
8. Lift the display assembly from the palm-rest and keyboard assembly.

CAUTION: To avoid damaging the display, do not slide the palm-rest and keyboard assembly over the display assembly.

9. After performing the above steps, you are left with the display assembly.

Installing the display assembly

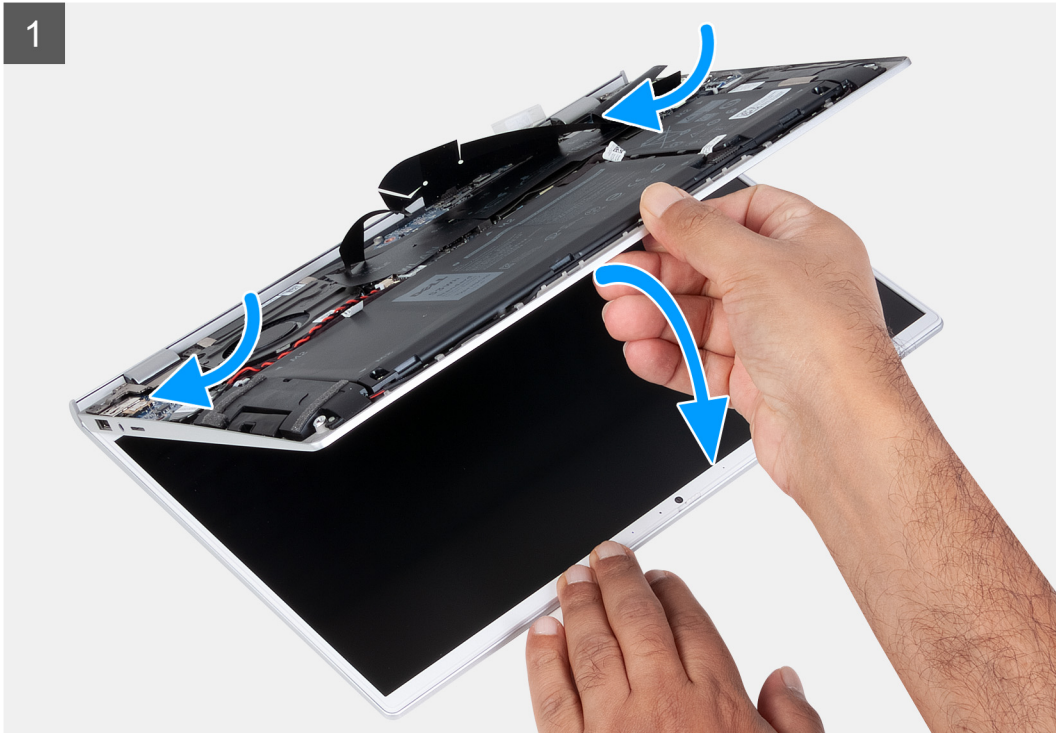
Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

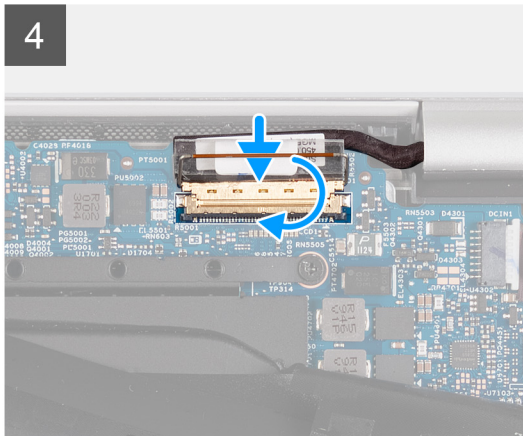
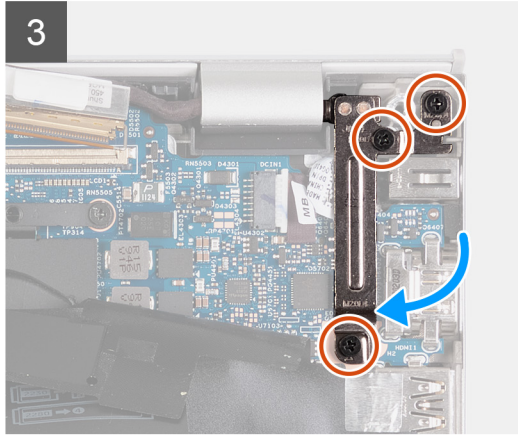
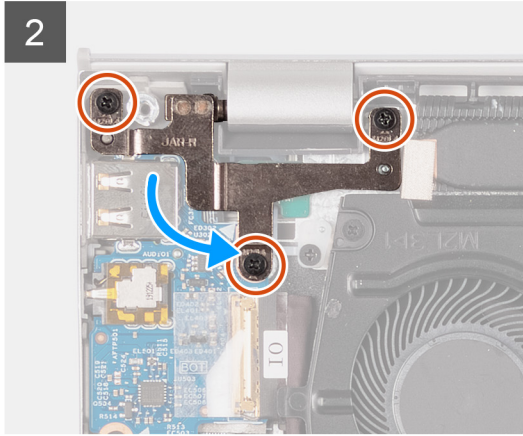
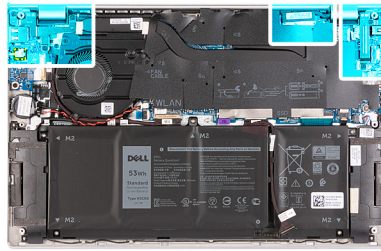
The following images indicate the location of the display assembly and provides a visual representation of the installation procedure.

1





6x
M2x4



Steps

1. Place the display assembly on a clean and flat surface with the display panel facing up.
2. Place the palm-rest and keyboard assembly under the display hinges.
 **CAUTION:** To avoid damaging the display, do not slide the palm-rest and keyboard assembly over the display assembly.
3. Close the left-display hinge and align the screw holes on the left-display hinge with the screw holes on the palm-rest and keyboard assembly.
4. Replace the three screws (M2x4) that secure the left-display hinge to the palm-rest and keyboard assembly.
5. Close the right-display hinge and align the screw holes on the right-display hinge with the screw holes on the palm-rest and keyboard assembly.
6. Replace the three screws (M2x4) that secure the right-display hinge to the palm-rest and keyboard assembly.
7. Connect the display cable to the connector on the system board and close the latch.
8. Adhere the tape that secures the display-cable latch to the system board.
9. Adhere the Mylar over the system board.

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Power-adapter port

Removing the power-adapter port

Prerequisites

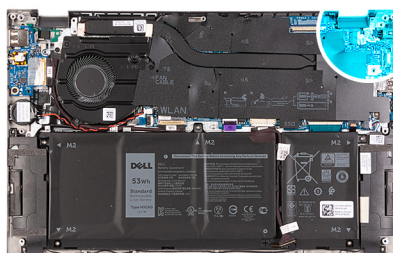
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [display assembly](#).

About this task

The following images indicate the location of the power-adapter port and provides a visual representation of the removal procedure.



1x
M2x3



Steps

1. Disconnect the power-adapter port from the system board.
2. Remove the screw (M2x3) that secures the power-adapter to the palm-rest and keyboard assembly.
3. Lift the power-adapter port from its slot on the palm-rest and keyboard assembly.

Installing the power-adapter port

Prerequisites

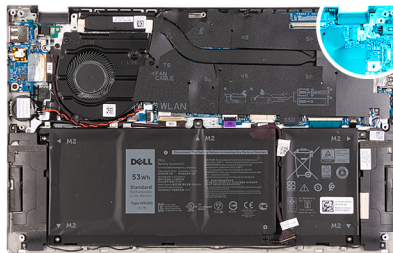
If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the power-adapter port and provides a visual representation of the installation procedure.



1x
M2x3



Steps

1. Place the power-adapter port into its slot on the palm-rest and keyboard assembly.
2. Align the screw hole on the power-adapter port to the screw hole on the palm-rest and keyboard assembly.
3. Replace the screw (M2x3) that secures the power-adapter port to the palm-rest and keyboard assembly.
4. Connect the power-adapter port to the connector on the system board.

Next steps

1. Install the [display assembly](#).
2. Install the [base cover](#).
3. Follow the procedure in [After working inside your computer](#).

Coin-cell battery

Removing the coin-cell battery

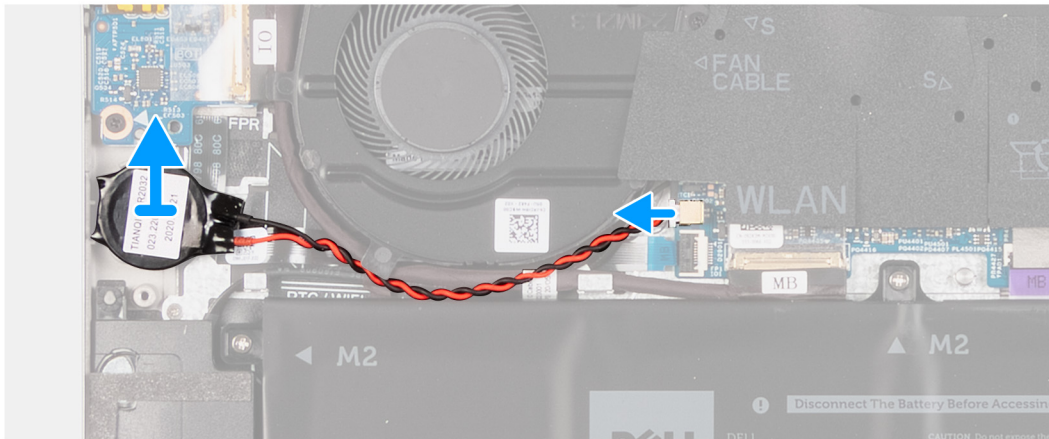
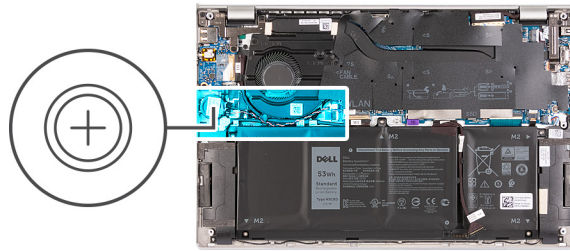
Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).

About this task

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.

The following images indicate the location of the coin-cell battery and provides a visual representation of the removal procedure.



Steps

1. Disconnect the coin-cell battery cable from the system board.
2. Peel and lift the coin-cell battery and its cable from the palm-rest and keyboard assembly

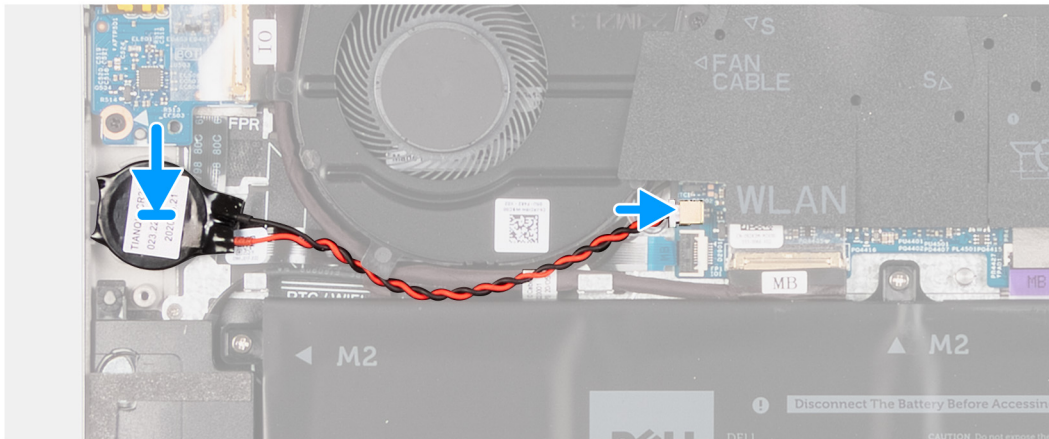
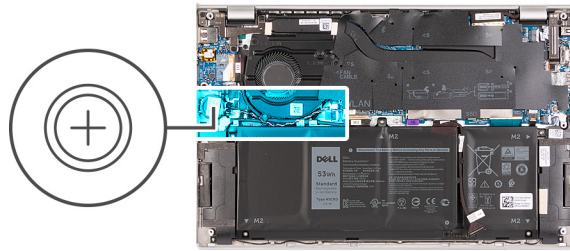
Installing the coin-cell battery

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the coin-cell battery and provides a visual representation of the installation procedure.



Steps

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

Next steps

1. Install the [base cover](#).
2. Follow the procedure in [After working inside your computer](#).

Touchpad

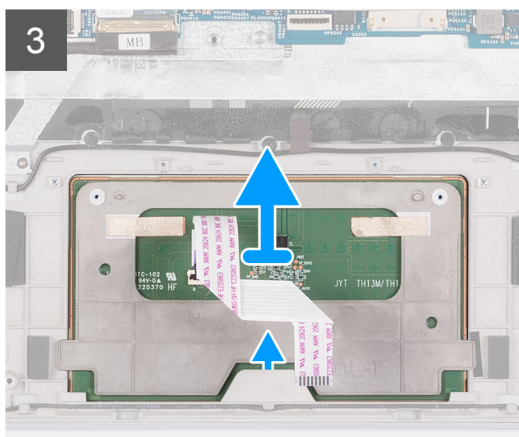
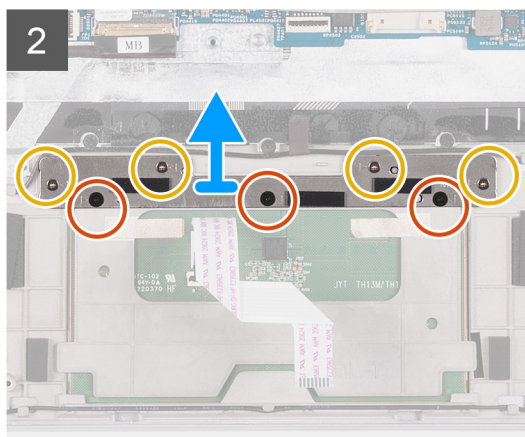
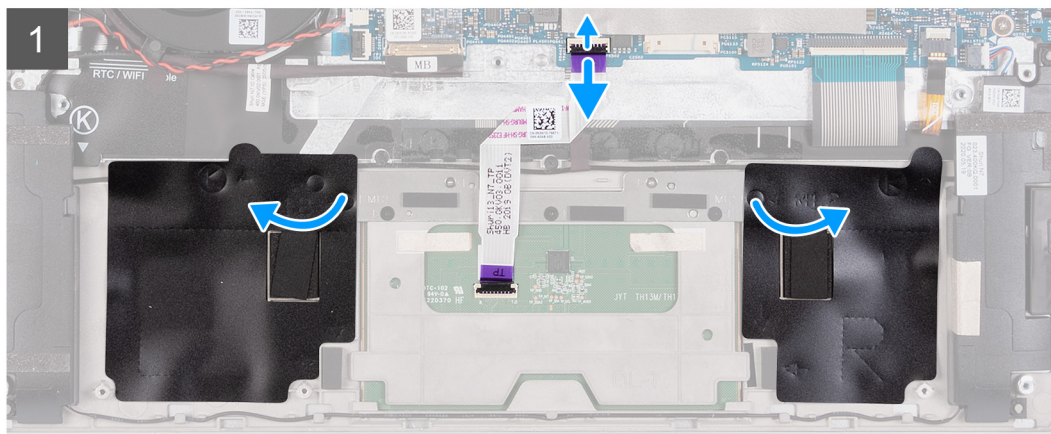
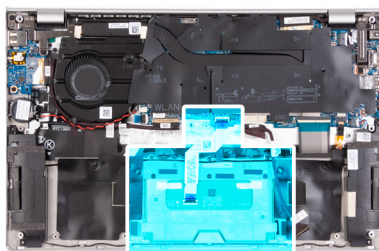
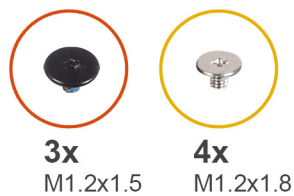
Removing the touchpad

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [battery](#).

About this task

The following images indicate the location of the touchpad and provides a visual representation of the removal procedure.



Steps

1. Open the latch and disconnect the the touchpad cable from the system board.
2. Peel the two Mylar covering the touchpad.
3. Remove the three screws (M1.2x1.5) that secure the touchpad bracket to the palm-rest and keyboard assembly.
4. Remove the four screws (M1.2x1.8) that secure the touchpad bracket to the palm-rest and keyboard assembly.
5. Lift the touchpad bracket off the touchpad.
6. Lift the touchpad off the palm-rest and keyboard assembly.

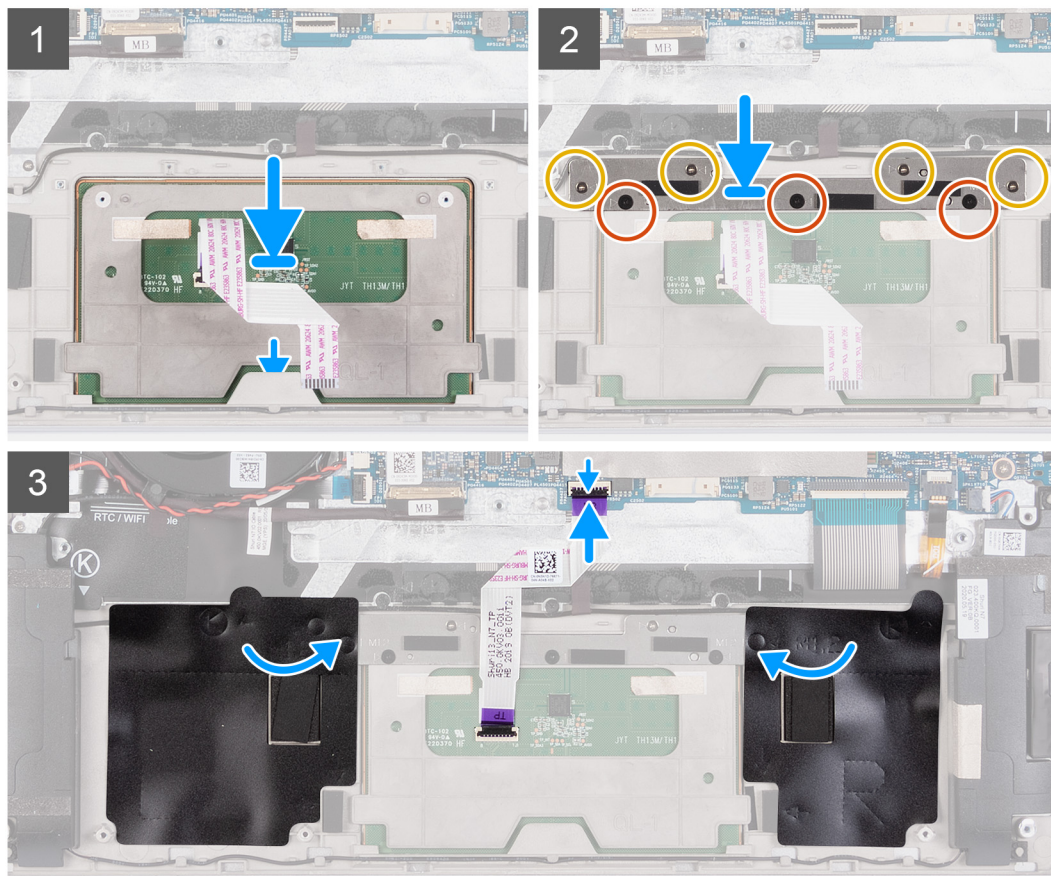
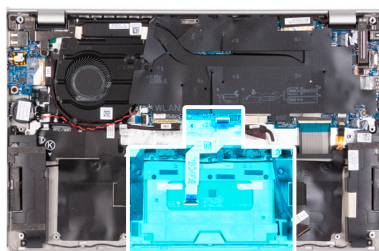
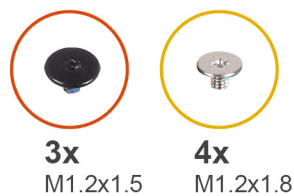
Installing the touchpad

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the touchpad and provides a visual representation of the installation procedure.



Steps

1. Place the touchpad into its slot on the palm-rest and keyboard assembly.
2. Turn the computer over and open the display to ensure that the touchpad is equally aligned on all sides.
3. Close the display and place the computer in the position shown.
4. Place the touchpad bracket on the touchpad.
5. Align the screw holes on the touchpad bracket to the screw holes on the palm-rest and keyboard assembly.
6. Replace the four screws (M1.2x1.8) that secure the touchpad bracket to the palm-rest and keyboard assembly.
7. Replace the three screws (M1.2x1.5) that secure the touchpad bracket to the palm-rest and keyboard assembly.
8. Connect the touchpad cable to the touchpad and close the latch.
9. Adhere the two Mylar that cover the touchpad.

Next steps

1. Install the [battery](#).
2. Install the [base cover](#).
3. Follow the procedure in [After working inside your computer](#).

I/O board

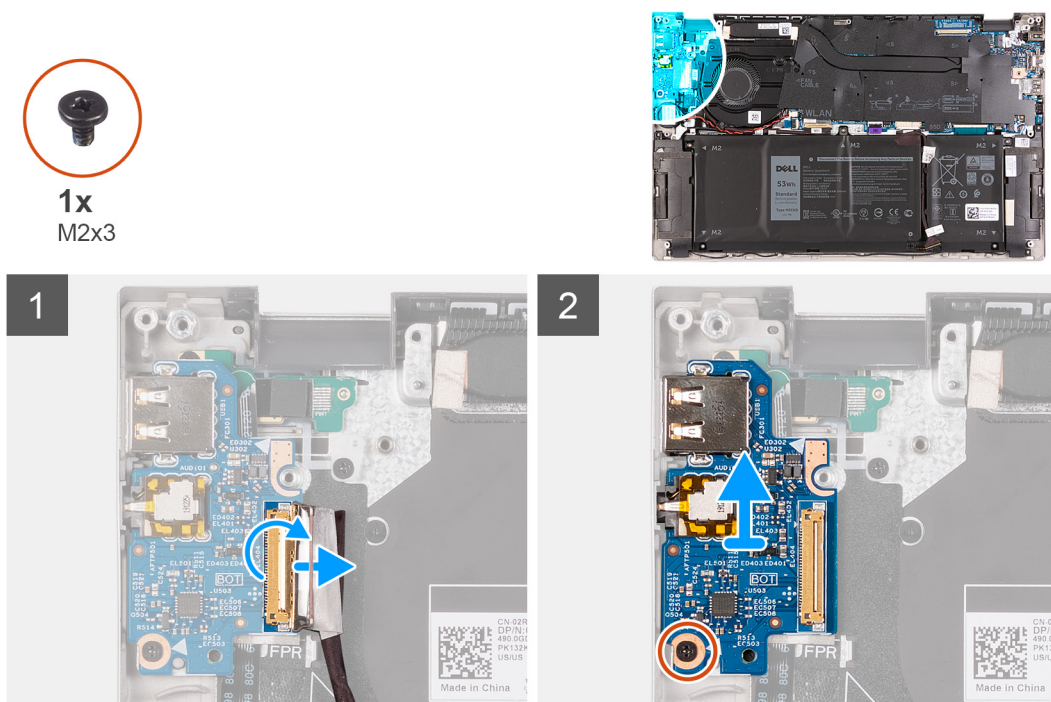
Removing the I/O board

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [display assembly](#).

About this task

The following images indicate the location of the I/O board and provides a visual representation of the removal procedure.



Steps

1. Peel the tape that secures the I/O-board cable latch to the I/O board.
2. Open the latch and disconnect the I/O-board cable from the I/O board.
3. Remove the screw (M2x3) that secures the I/O board to the palm-rest and keyboard assembly.
4. Lift the I/O board off the palm-rest and keyboard assembly.

Installing the IO board

Prerequisites

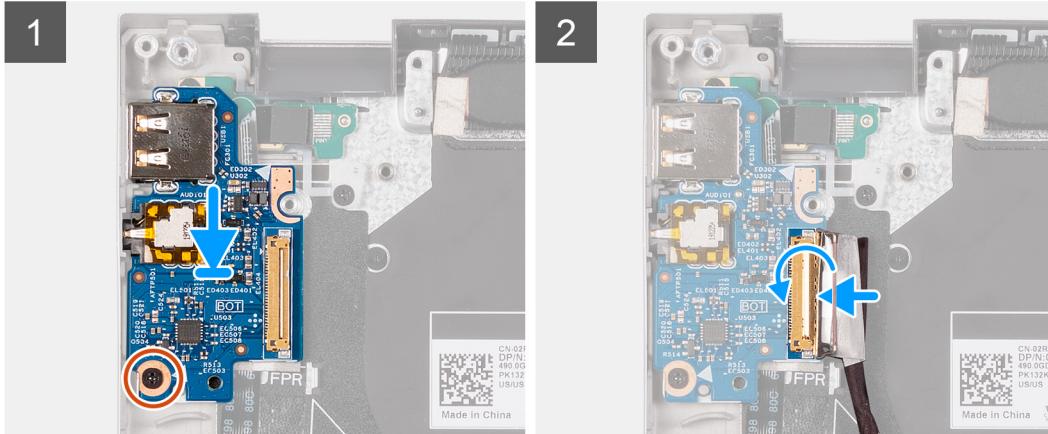
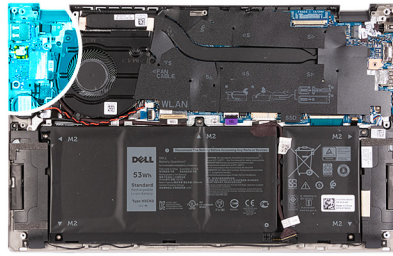
If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the I/O board and provides a visual representation of the installation procedure.



1x
M2x3



Steps

1. Using the alignment posts, place the I/O board on the palm-rest and keyboard assembly.

CAUTION: To avoid damaging your computer, ensure that the USB port on the I/O board is aligned to the USB port slot on the palm-rest and keyboard assembly.

2. Align the screw holes on the I/O board to the screw holes on the palm-rest and keyboard assembly.
3. Replace the screw (M2x3) that secures the I/O board to the palm-rest and keyboard assembly.
4. Connect the I/O-board cable to the connector on the I/O board and close the latch.
5. Adhere the tape that secures the I/O-board cable latch to the I/O board.

Next steps

1. Install the [display assembly](#).
2. Install the [base cover](#).
3. Follow the procedure in [After working inside your computer](#).

Power button

Removing the power-button with optional fingerprint reader

Prerequisites

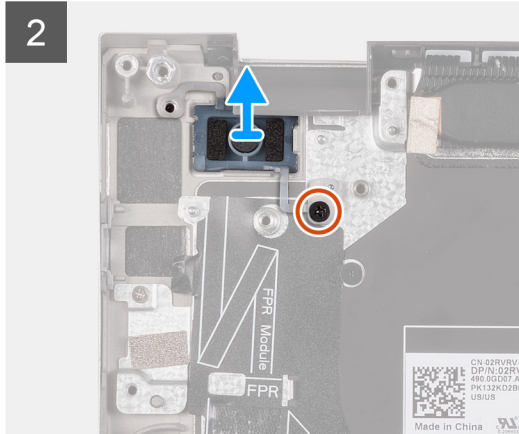
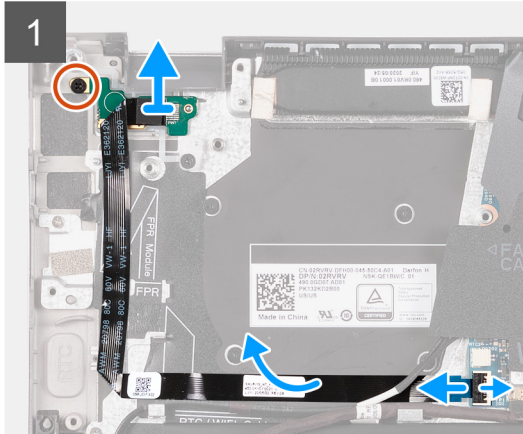
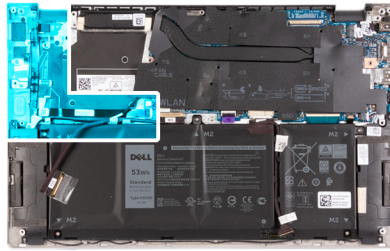
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [fan](#).
4. Remove the [display assembly](#).
5. Remove the [IO board](#).

About this task

The following images indicate the location of the power-button with optional fingerprint reader and provides a visual representation of the removal procedure.



2x
M2x3



Steps

1. Open the latch and disconnect the power-button board from the system board.
2. Peel the power-button board cable from the palm-rest and keyboard assembly.
3. Remove the screw (M2x3) that secures the power-button board to the palm-rest and keyboard assembly.
4. Lift the power-button board and its cable off the palm-rest and keyboard assembly.
5. Remove the screw (M2x3) that secures the power-button with optional fingerprint reader to the palm-rest and keyboard assembly.
6. Lift the power-button with optional fingerprint reader off the palm-rest and keyboard assembly.

Installing the power button

Prerequisites

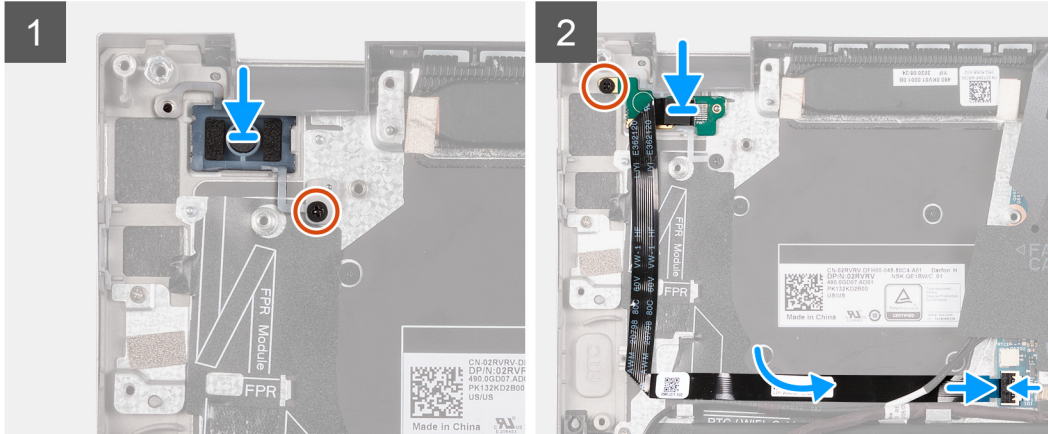
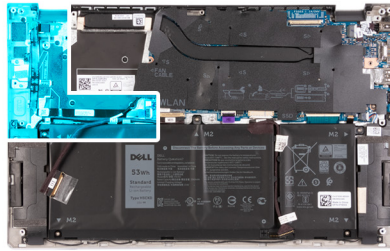
If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the power-button with optional fingerprint reader and provides a visual representation of the installation procedure.



2x
M2x3



Steps

1. Using the alignment posts, place the power-button with optional fingerprint reader into its slot on the palm-rest and keyboard assembly.
2. Replace the screw (M2x3) that secures the power-button with optional fingerprint reader to the palm-rest and keyboard assembly.
3. Place the power-button board on the power-button with optional fingerprint reader.
4. Align the screw hole on the power-button board to the screw hole on the palm-rest and keyboard assembly.
5. Replace the screw (M2x3) that secures the power-button board to the palm-rest and keyboard assembly.
6. Connect the power-button board cable to the connector on the system board and close the latch.
7. Adhere the power-button board cable to the palm-rest and keyboard assembly.

Next steps

1. Install the [IO board](#).
2. Install the [display assembly](#).
3. Install the [fan](#).
4. Install the [base cover](#).
5. Follow the procedure in [After working inside your computer](#).

System board

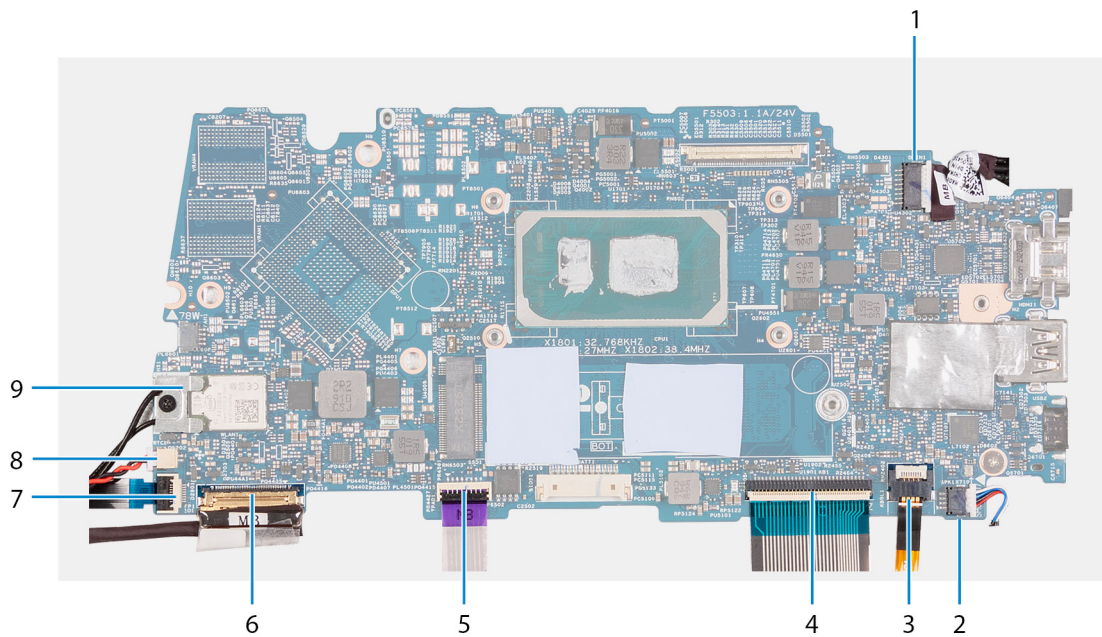
Removing the system board

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Remove the [battery](#).
4. Remove the [M.2 2230 solid-state drive](#) or the [M.2 2280 solid-state drive](#), whichever applicable.
5. Remove the [fan](#).
6. Remove the [heat sink](#).
7. Remove the [display assembly](#).

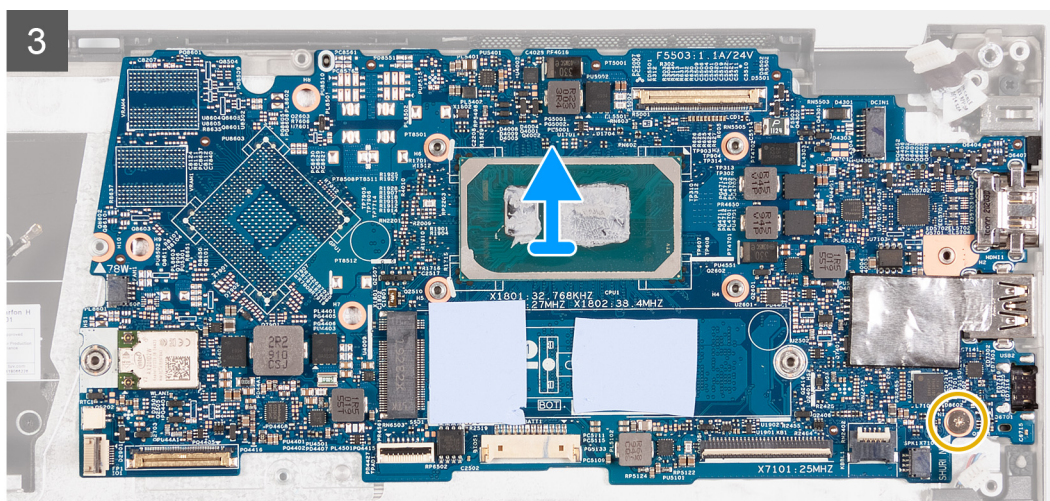
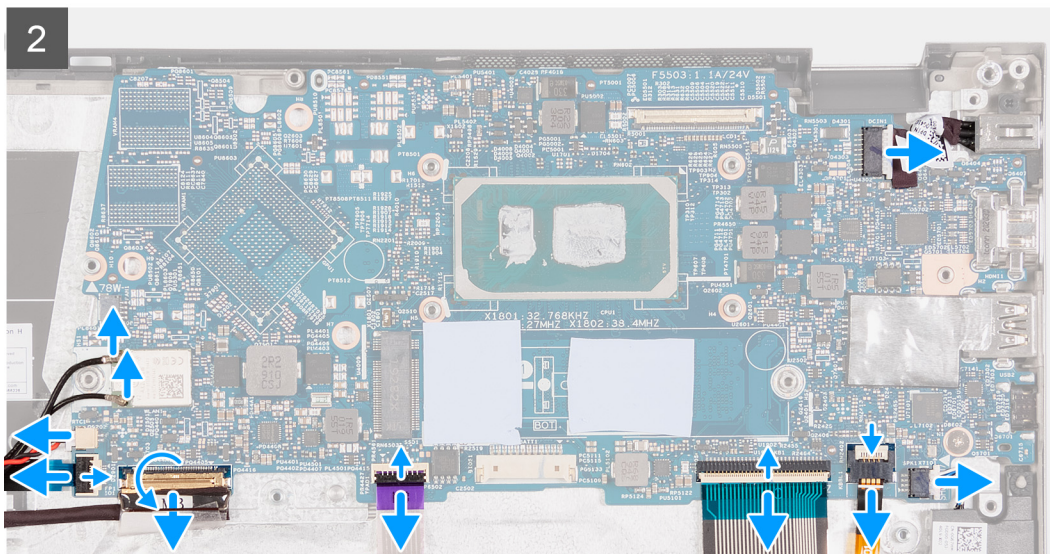
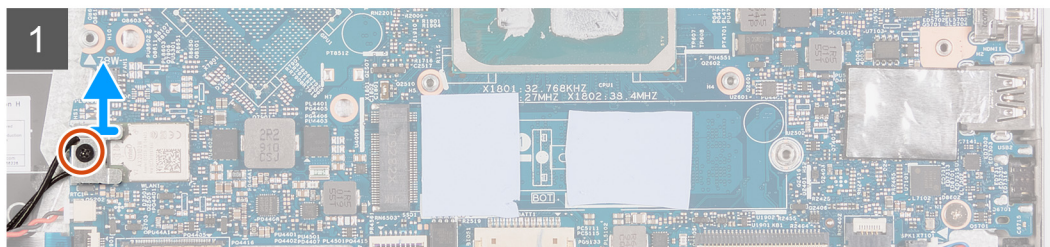
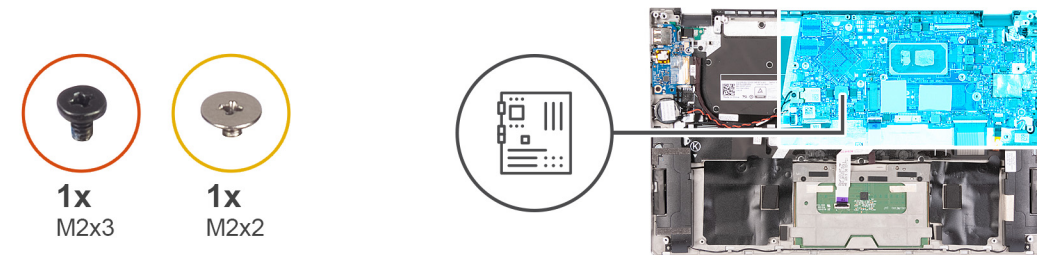
About this task

The following image indicates the connectors on the system board.



1. Power-adapter port cable
2. Speaker cable
3. Keyboard-backlight cable
4. Keyboard cable
5. Touchpad cable
6. I/O-board cable
7. Fingerprint-reader cable
8. Coin-cell battery cable
9. Wireless-card bracket and antenna cables

The following images indicate the location of the system board and provides a visual representation of the removal procedure.



Steps

1. Remove the screw (M2x3) that secures the wireless-card bracket to the system board.
2. Lift the wireless-card bracket off the system board.
3. Disconnect the antenna cables from the system board.
4. Disconnect the coin-cell battery cable from the system board.
5. Open the latch and disconnect the disconnect the power-button board cable from the system board.

6. Peel that tape that secures the I/O-board cable connector latch to the system board.
7. Open the latch and disconnect the I/O-board cable from the system board.
8. Open the latch and disconnect the touchpad cable from the system board.
9. Open the latch and disconnect the keyboard cable from the system board.
10. Open the latch and disconnect the keyboard-backlight cable from the system board.
11. Disconnect the speaker cable from the system board.
12. Disconnect the power-adapter port cable from the system board.
13. Remove the screw (M2x2) that secures the system board to the palm-rest and keyboard assembly.
14. Lift the system board off the palm-rest and keyboard assembly.

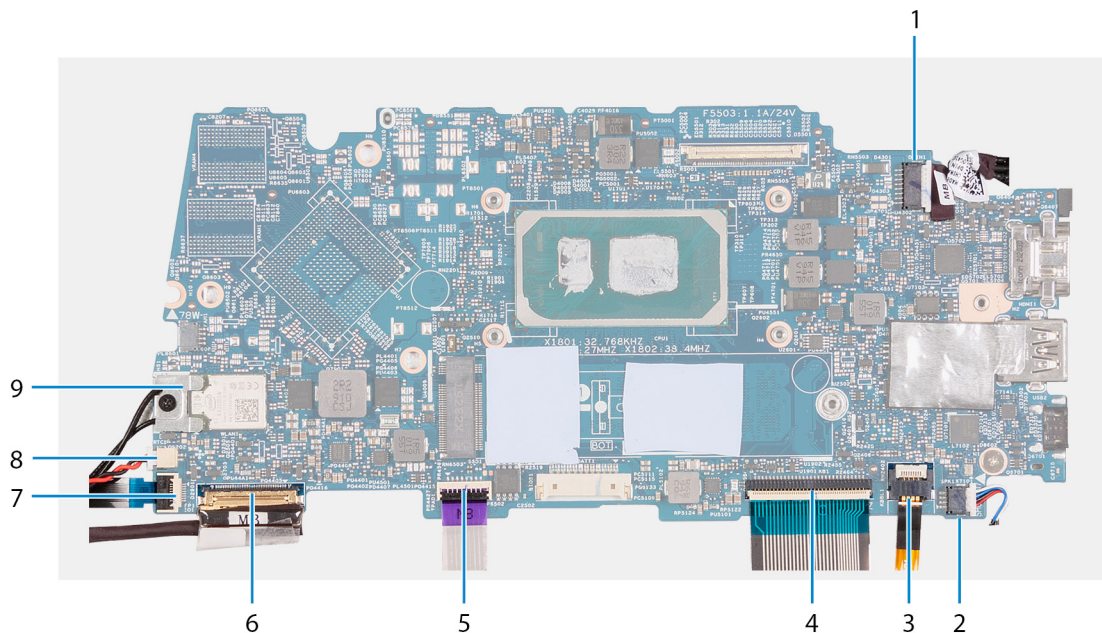
Installing the system board

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

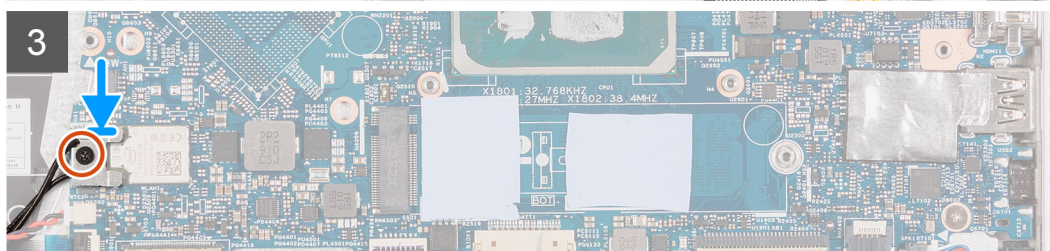
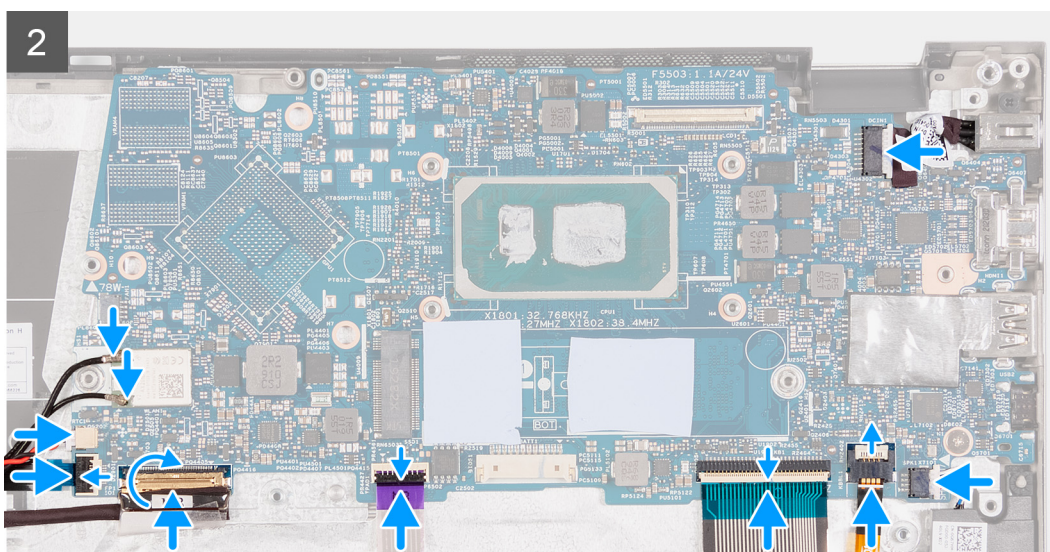
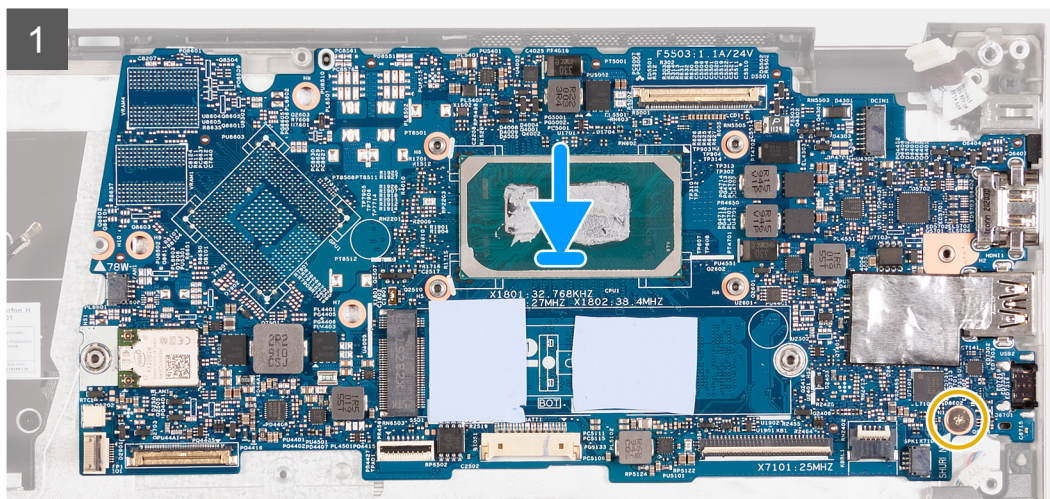
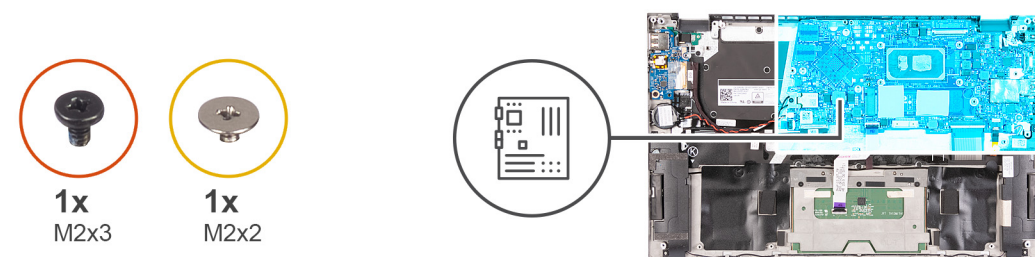
About this task

The following image indicates the connectors on the system board.



1. Power-adapter port cable
2. Speaker cable
3. Keyboard-backlight cable
4. Keyboard cable
5. Touchpad cable
6. I/O-board cable
7. Fingerprint-reader cable
8. Coin-cell battery cable
9. Wireless-card bracket and antenna cables

The following images indicate the location of the system board and provides a visual representation of the installation procedure.



Steps

1. Using the alignment posts, place the system board on the palm-rest and keyboard assembly.
2. Replace the screw (M2x2) that secures the system board to the palm-rest and keyboard assembly.
3. Connect the power-adaptor port cable to the connector on the system board.
4. Connect the speaker cable to the connector on the system board.
5. Connect the keyboard cable to the connector on the system board and close the latch.

6. Connect the keyboard-backlight cable to the connector on the system board and close the latch, if applicable.
7. Connect the touchpad cable to the connector on the system board and close the latch.
8. Connect the I/O-board cable to the connector on the system board and close the latch.
9. Adhere the tape that secures the I/O-board cable connector latch to the system board.
10. Connect the power-button board cable to the connector on the system board and close the latch, if applicable.
11. Connect the coin-cell battery cable to the system board.
12. Connect the antenna cables to the wireless card.
13. Place the wireless-card bracket on 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

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

Next steps

1. Install the [display assembly](#).
2. Install the [heat sink](#).
3. Install the [fan](#).
4. Install the [M.2 2230 solid-state drive](#) or the [M.2 2280 solid-state drive](#), whichever applicable.
5. Install the [battery](#).
6. Install the [base cover](#).
7. Follow the procedure in [After working inside your computer](#).

Palm-rest and keyboard assembly

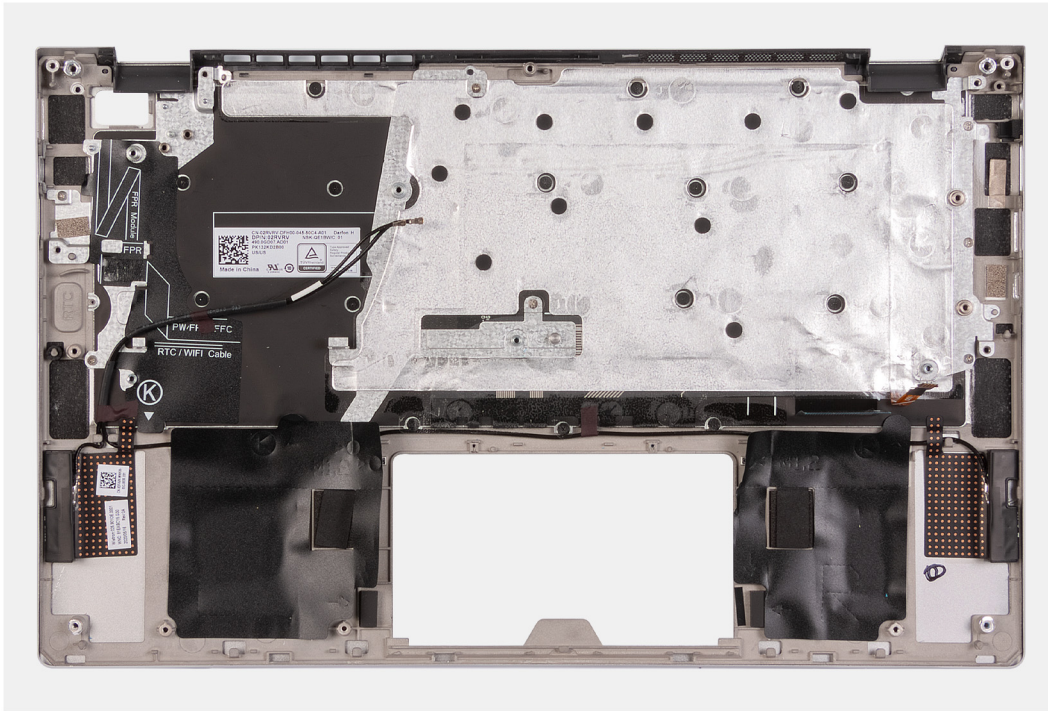
Removing the palm-rest and keyboard assembly

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
 2. Remove the [base cover](#).
 3. Remove the [fan](#).
 4. Remove the [display assembly](#).
 5. Remove the [power-adaptor port](#).
 6. Remove the [touchpad](#).
 7. Remove the [display assembly](#).
 8. Remove the [coin-cell battery](#).
 9. Remove the [touchpad](#).
 10. Remove the [IO board](#).
 11. Remove the [power button](#).
 12. Remove the [system board](#).
-  **NOTE:** The system board can be removed along with the heat sink.
13. Remove the [speakers](#).

About this task

The following images indicate the location of the palm-rest and keyboard assembly and provides a visual representation of the removal procedure.



Steps

After performing the pre-requisites you are left with the palm-rest and keyboard assembly.

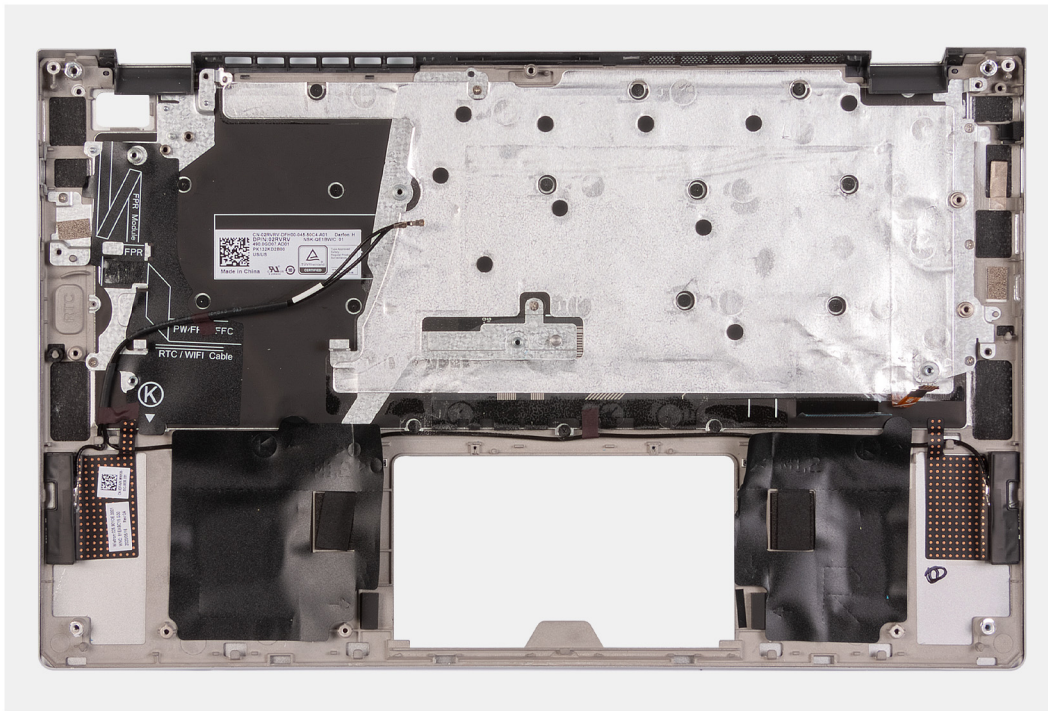
Installing the palm-rest and keyboard assembly

Prerequisites

If you are replacing a component, remove the existing component before performing the installation process.

About this task

The following images indicate the location of the palm-rest and keyboard assembly and provides a visual representation of the installation procedure.



Steps

Place the palm-rest and keyboard assembly on a flat and clean surface and perform the post-requisites to install the palm-rest and keyboard assembly.

Next steps

1. Install the [speakers](#).
2. Install the [system board](#).
3. Install the [power button](#).
4. Install the [IO board](#).
5. Install the [touchpad](#).
6. Install the [coin-cell battery](#).
7. Install the [display assembly](#).
8. Install the [touchpad](#).
9. Install the [power-adapter port](#).
10. Install the [display assembly](#).
11. Install the [fan](#).
12. Install the [base cover](#).
13. Follow the procedure in [After working inside your computer](#).

Drivers and downloads

When troubleshooting, downloading or installing drivers it is recommended that you read the Dell Knowledge Based article, Drivers and Downloads FAQ [SLN128938](#).

System setup

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

 **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

Steps

1. Turn on your computer.
2. Press F2 immediately to enter the BIOS setup program.

 **NOTE:** 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.

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.

Table 3. Navigation keys

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.

One time boot menu

To enter **one time boot menu**, turn on your computer, and then press F2 immediately.

 **NOTE:** It is recommended to shutdown the computer if it is on.

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 (if available)

 **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.

System setup options

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

Table 4. System setup options—Main menu

Main	
System Time	Displays the current time in hh:mm:ss format.
System Date	Displays the current date in mm/dd/yyyy format.
BIOS Version	Displays the BIOS version.
Product Name	Displays the model number of your computer.
Service Tag	Displays the service tag of your computer.
Asset Tag	Displays the asset tag of your computer.
CPU Type	Displays the processor type.
CPU Speed	Displays the processor speed.
CPU ID	Displays the processor identification code.
CPU Cache	
L1 Cache	Displays the processor L1 cache size.
L2 Cache	Displays the processor L2 cache size.
L3 Cache	Displays the processor L3 cache size.
First HDD	Displays the type of hard drive installed.
M.2 PCIe SSD	Display the M.2 PCIe SSD device information of the computer.
AC Adapter Type	Displays the type of AC adapter.
System Memory	Displays the size of memory installed.
Memory Speed	Displays the speed of memory.
Keyboard Type	Displays the type of keyboard installed on the computer.

Table 5. System setup options—Advanced menu

Advanced	
PowerNow! Enable	Enables or disables the dynamic frequency scaling and power-saving technology for the AMD processor. Default: Enabled
Virtualization	Enables or disables the Virtualization technology. Default: Enabled
Integrated NIC	Enables or disables the on-board LAN controller. Default: Enabled
USB Emulation	Enables or disables the USB emulation feature. This feature defines how the BIOS, in the absence of a USB-aware operating system, handles USB devices. USB emulation is always enabled during POST. i NOTE: You cannot boot any type of USB device (floppy, hard drive, or memory key) when this option is off. Default: Enabled
USB Wake Support	Allows you to enable USB devices to wake the computer from standby or to disable the USB wake support feature. i NOTE: If USB PowerShare is enabled, a device connected to the USB PowerShare connector may not wake the computer. i NOTE: To enable wake support for the fingerprint reader the USB Wake Support needs to be enabled in the BIOS. To enable USB wake support, complete the steps in the knowledge base article SLN321473. Default: Disabled
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard drive controller. Default: AHCI
Adapter Warnings	Allows you to choose if the computer should display warning messages when you use AC adapters that are not supported by your computer. Default: Enabled
Function Key Behavior	Allows you to set function key or multimedia key as the default function key behavior. Default: Multimedia key
Keyboard Illumination	Selects the operating mode of the keyboard illumination feature. Default: Bright
Keyboard Backlight with AC	Selects the timeout value for the keyboard backlight when an AC adapter is plugged into the computer. Default: 1 minute
Keyboard Backlight with Battery	Selects the timeout value for the keyboard backlight when the computer is running on battery power. Default: 1 minute
Battery Health	Displays the battery health.
Camera	Enables or disables the camera.

Table 5. System setup options—Advanced menu (continued)

Advanced	
Battery Charge Configuration	Default: Disabled Set the battery charge settings with a preselected custom charge start and stop. Default: Adaptive
Advanced Battery Charge Configuration	Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period. Default: Disabled
Maintenance	
Data Wipe on next boot	Enables or disables data wipe on the next boot. Default: Disabled
BIOS Recovery from Hard Drive	Enables the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.
BIOS Auto-Recovery	Enables BIOS to automatically recover BIOS without user actions. Default: Disabled
SupportAssist System Resolution	
Auto OS Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution Console and for the Dell OS Recovery tool. Default: 2
SupportAssist OS Recovery	Enables or disables the boot flow for the SupportAssist OS Recovery tool in the even of certain system errors. Default: Disabled

Table 6. System setup options—Security menu

Security	
Admin Password Status	Displays if the administrator password is clear or set.
System Password Status	Displays if the system password is clear or set. Default: Not Set
Service Tag	Set your system's Service Tag.
Admin Password	Allows you to set the administrator password. The administrator password controls access to the system setup utility.
System Password	Allows you to set the system password. The system password controls access to the computer at boot.
Password Change	Allows you to permit or deny system password or HDD password changes. Default: Permitted
Firmware TPM	Enable or disable the firmware TPM. Default: Enabled
PPI Bypass for Clear Command	Allows you to control the TPM Physical Presence Interface (PPI). When enabled, this setting will allow the OS to skip BIOS PPI user prompts when issuing the Clear command. Changes to this setting take effect immediately.

Table 6. System setup options—Security menu (continued)

Security	
UEFI Firmware Capsule Updates	Default: Disabled Enables or disables BIOS updates through UEFI capsule update packages.
WINDOWS SMM SECURITY MITIGATIONS TABLE (WSMT)	Default: Enabled Enables or disables configuration of platform features on Dell Client Systems with WSMT-enabled BIOS.
Secure Boot	Default: Enabled Enables or disables Secure Boot.

Table 7. System setup options—Boot menu

Boot	
File Browser Add Boot Option	Allows you to add boot options.

Table 8. System setup options—Exit menu

Exit	
Exit Saving Changes	Allows you to exit system setup and save your changes.
Save Change Without Exit	Allows you to save your changes without exiting the BIOS setup.
Exit Discarding Changes	Allows you to exit the BIOS setup without saving the changes.
Load Optimal Defaults	Allows you to restore default values for all system setup options.
Discard Changes	Allows you to load previous values for all system setup options.

Updating the BIOS in Windows

Prerequisites

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet.

About this task

 **NOTE:** If BitLocker is enabled, it must be suspended before updating the system BIOS, and then re-enabled after the BIOS update is completed.

Steps

1. Restart the computer.
2. Go to www.dell.com/support.
 - Enter the **Service Tag** or **Express Service Code** and click **Submit**.
 - Click **Detect Product** and follow the on-screen instructions.
3. If you are unable to detect or find the Service Tag, click **Choose from all products**.
4. Choose the **Products** category from the list.

 **NOTE:** Choose the appropriate category to reach the product page.

5. Select your computer model and the **Product Support** page of your computer appears.
6. Click **Get drivers**, and then click **Drivers and Downloads**.
The Drivers and Downloads section is displayed.
7. Click **Find it myself**.
8. Click **BIOS** to view the BIOS versions.
9. Identify the latest BIOS file and click **Download**.
10. Select your preferred download method in the **Please select your download method below** window, and then click **Download File**.
The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.
Follow the on-screen instructions.

Updating BIOS on systems with BitLocker enabled

 **CAUTION:** If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: <https://www.dell.com/support/article/sln153694>

Updating your system BIOS using a USB flash drive

About this task

If the computer cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another computer and save it to a bootable USB flash drive.

 **NOTE:** You must use a bootable USB flash drive. For more information, see the knowledge base article [SLN143196](#).

Steps

1. Download the BIOS update .exe file to another computer.
2. Copy the .exe file onto the bootable USB flash drive.
3. Insert the USB flash drive into the computer that requires the BIOS update.
4. Restart the computer and press F12 when the Dell logo appears to display the One Time Boot Menu.
5. Using arrow keys, select **USB Storage Device** and press Enter.
6. The computer restarts to a Diag C:\> prompt.
7. Run the file by typing the complete filename and press Enter.
8. The BIOS Update Utility is displayed. Follow the on-screen instructions.

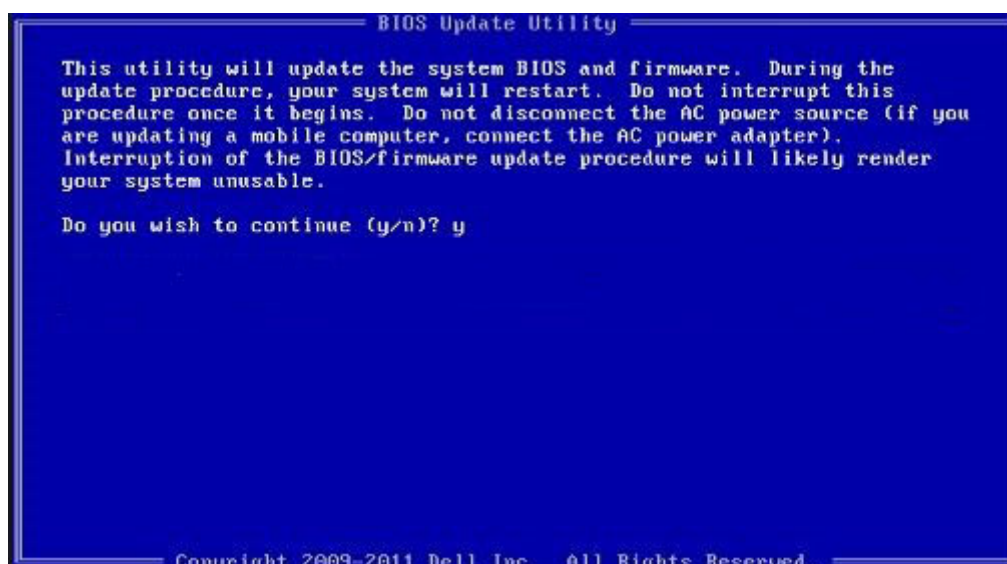


Figure 1. DOS BIOS Update Screen

Flashing the BIOS from the F12 One-Time boot menu

Updating your system BIOS using a BIOS update.exe file copied to a FAT32 USB key and booting from the F12 one time boot menu.

About this task

BIOS Update

You can run the BIOS update file from Windows using a bootable USB key or you can also update the BIOS from the F12 One-Time boot menu on the system.

Most Dell systems built after 2012 have this capability and you can confirm by booting your system to the F12 One-Time Boot Menu to see if BIOS FLASH UPDATE is listed as a boot option for your system. If the option is listed, then the BIOS supports this BIOS update option.

 **NOTE:** Only systems with BIOS Flash Update option in the F12 One-Time Boot Menu can use this function.

Updating from the One-Time Boot Menu

To update your BIOS from the F12 One-Time boot menu, you will need:

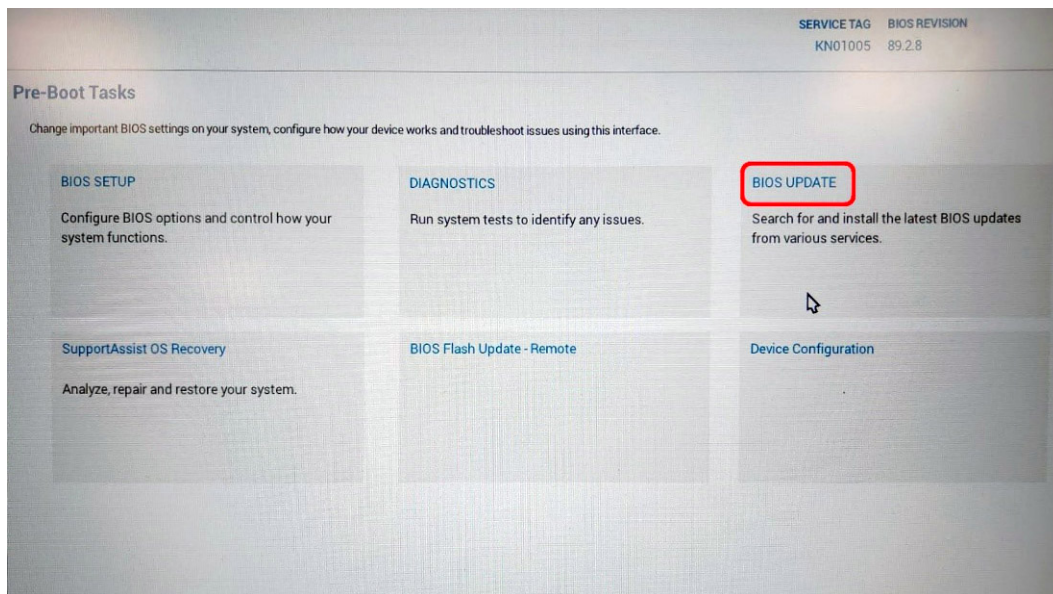
- USB key formatted to the FAT32 file system (key does not have to be bootable)
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB key
- AC power adapter connected to the system
- Functional system battery to flash the BIOS

Perform the following steps to execute the BIOS update flash process from the F12 menu:

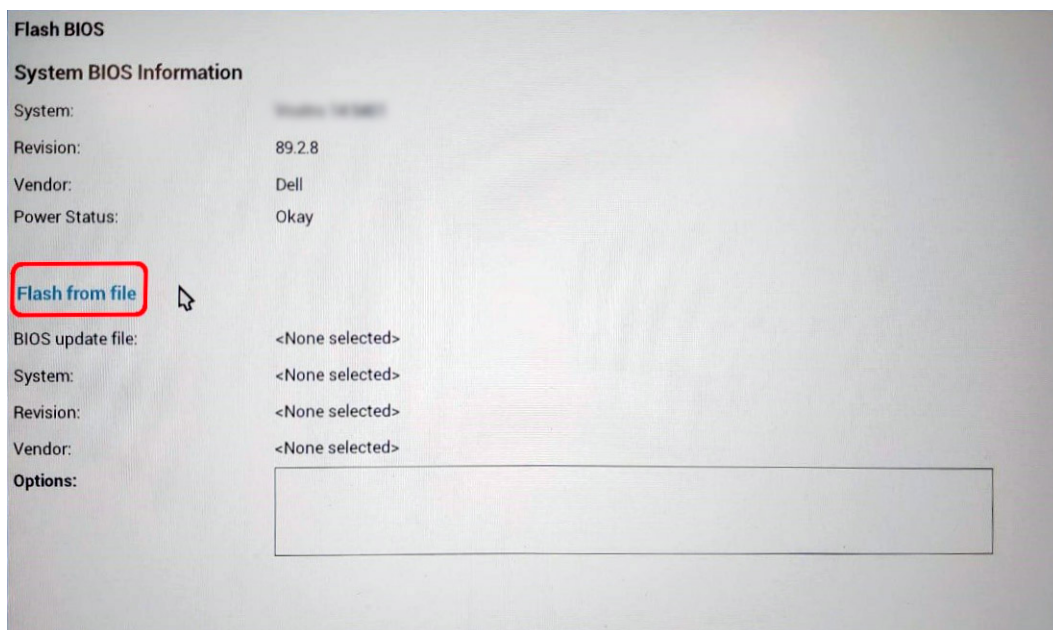
 **CAUTION:** Do not power off the system during the BIOS update process. Powering off the system could make the system fail to boot.

Steps

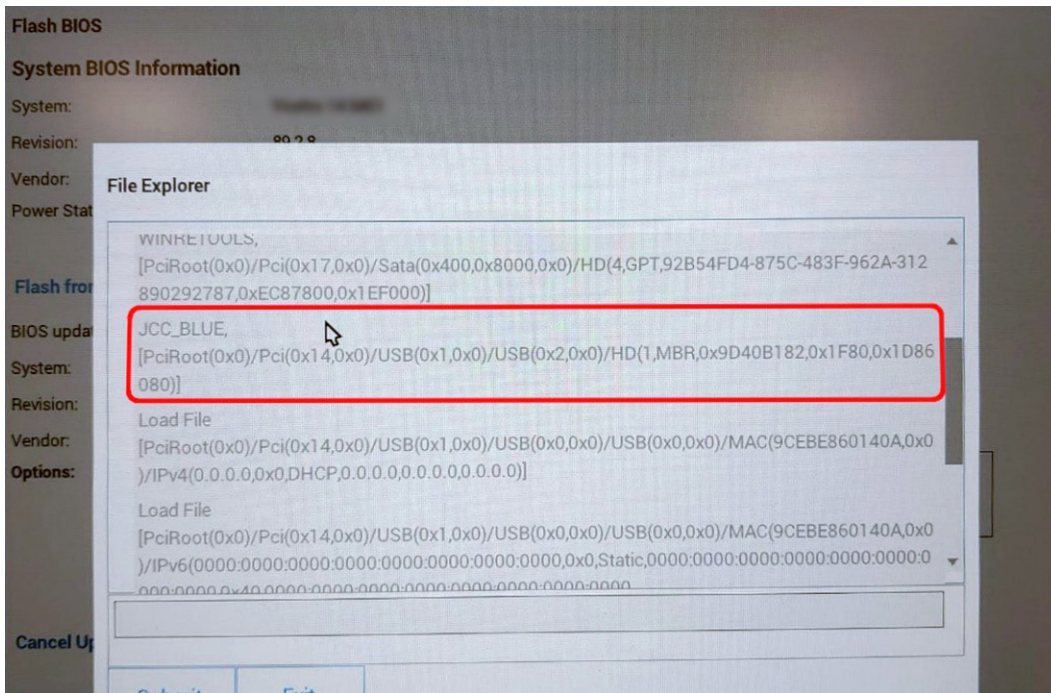
1. From a power off state, insert the USB key where you copied the flash into a USB port of the system .
2. Power on the system and press the F12 key to access the One-Time Boot Menu, Highlight BIOS Update using the mouse or arrow keys then press **Enter**.



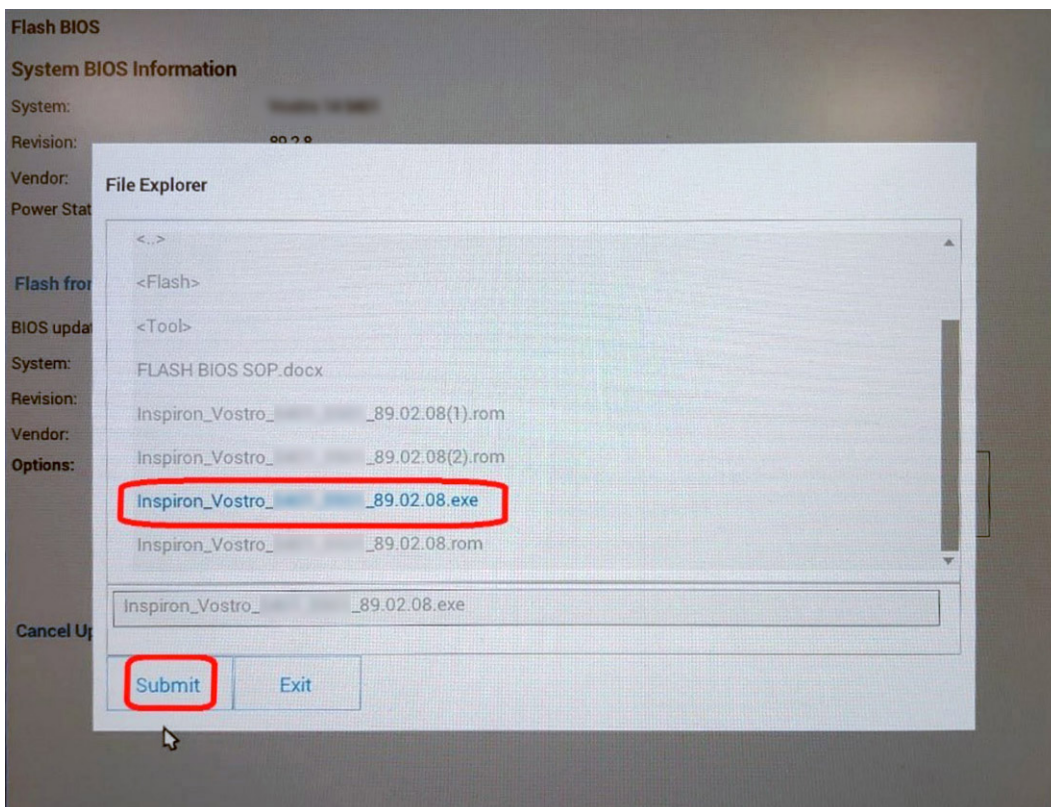
3. The flash BIOS menu will open, and then click the **Flash from file**.



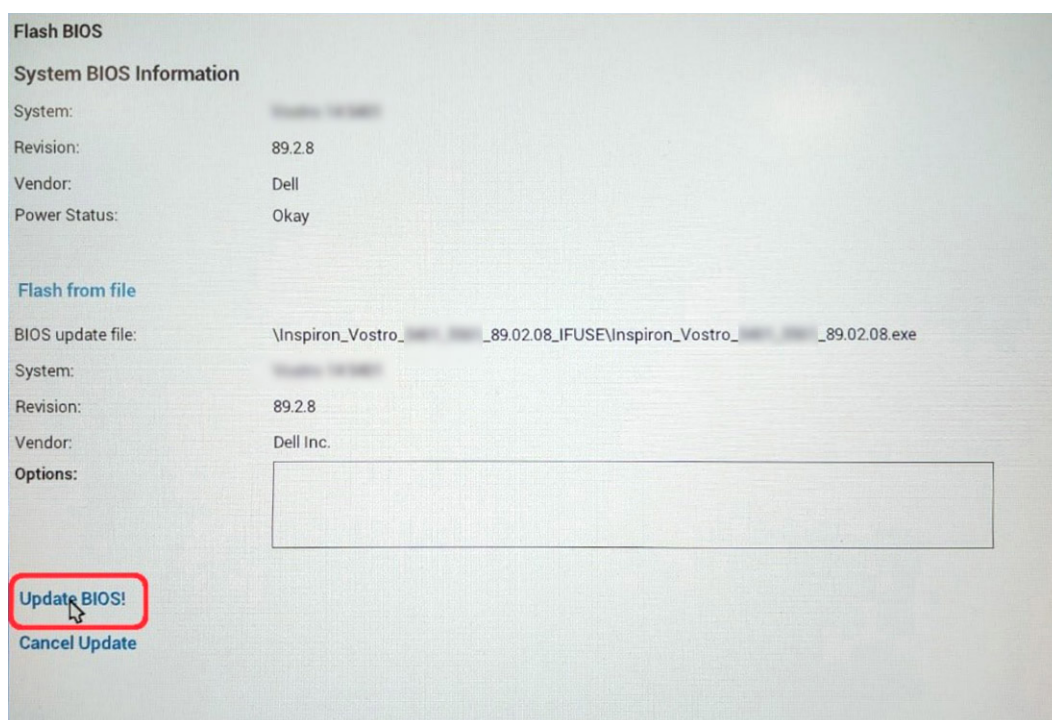
4. Select external USB device.



- Once the file is selected, Double click the flash target file, then press submit.



- Click the **Update BIOS** then system will reboot to flash the BIOS.



- Once complete, the system will reboot and the BIOS update process is completed.

System and setup password

Table 9. System and setup password

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

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

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

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

NOTE: System and setup password feature is disabled.

Assigning a system setup password

Prerequisites

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

About this task

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

Steps

- In the **System BIOS** or **System Setup** screen, select **Security** and press **Enter**. The **Security** screen is displayed.

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

Deleting or changing an existing system setup password

Prerequisites

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

About this task

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

Steps

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press **Enter**.
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press **Enter** or **Tab**.
4. Select **Setup Password**, alter or delete the existing setup password and press **Enter** or **Tab**.
 **NOTE:** If you change the System and/or Setup password, re enter the new password when prompted. If you delete the System and Setup password, confirm the deletion when prompted.
5. Press **Esc** and a message prompts you to save the changes.
6. Press **Y** to save the changes and exit from System Setup.
The computer restarts.

Clearing CMOS settings

About this task

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

Steps

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

Clearing BIOS (System Setup) and System passwords

About this task

To clear the system or BIOS passwords, contact Dell technical support as described at www.dell.com/contactdell.

 **NOTE:** For information on how to reset Windows or application passwords, refer to the documentation accompanying Windows or your application.

Troubleshooting

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% charge.

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

Off

- Power adapter is connected, and the battery is fully charged.
- Computer is running on battery, and the battery has more than 5% 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 10. LED codes

Diagnostic light codes	Problem description	Recommended solutions
2,1	Processor failure	Run the Intel CPU diagnostics tools. If problem persists, replace the system board.
2,2	System board: BIOS or ROM (Read-Only Memory) failure	Flash latest BIOS version. If problem persists, replace the system board.
2,3	No memory or RAM (Random-Access Memory) detected	Confirm that the memory module is installed properly. If problem persists, replace the memory module.
2,4	Memory or RAM (Random-Access Memory) failure	Reset and swap memory modules amongst the slots. If problem persists, replace the memory module.
2,5	Invalid memory installed	Reset and swap memory modules among the slots. If problem persists, replace the memory module.
2,6	System-board or chipset error	Flash latest BIOS version. If problem persists, replace the system board.
2,7	Display failure	Flash latest BIOS version. If problem persists, replace the system board.
3,1	Coin-cell battery failure	Reset the CMOS battery connection. If problem persists, replace the RTC battery.
3,2	PCI, video card/chip failure	Replace the system board.
3,3	Recovery image not found	Flash latest BIOS version. If problem persists, replace the system board.
3,4	Recovery image found but invalid	Flash latest BIOS version. If problem persists, replace the system board.
3,5	Power-rail failure	EC ran into power sequencing failure. If problem persists, replace the system board.

Table 10. LED codes (continued)

Diagnostic light codes	Problem description	Recommended solutions
3,6	System BIOS Flash incomplete	Flash corruption detected by SBIOS. If problem persists, replace the system board.
3,7	Management Engine (ME) error	Timeout waiting on ME to reply to HECI message. If problem persists, replace the system board.

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.

SupportAssist diagnostics

About this task

The SupportAssist diagnostics (previously known as ePSA diagnostics) performs a complete check of your hardware. The SupportAssist diagnostics is embedded in the BIOS and is launched by it internally. The SupportAssist diagnostics provides a set of options for particular devices or device groups. It allows 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 and provide extra information about the failed device(s)
- View status messages that indicate if the tests are completed successfully
- View error messages that indicate if problems were encountered during the test

 **NOTE:** Some tests are meant for specific devices and require user interaction. Ensure that you are present in front of the computer when the diagnostic tests are performed.

For more information, see [SupportAssist Pre-Boot System Performance Check](#).

Recovering the operating system

When your computer is unable to boot to the operating system even after repeated attempts, it automatically starts Dell SupportAssist OS Recovery.

Dell SupportAssist OS Recovery is a standalone tool that is preinstalled in all Dell computers installed with Windows 10 operating system. It consists of tools to diagnose and troubleshoot issues that may occur before your computer boots to the operating system. It enables you to diagnose hardware issues, repair your computer, back up your files, or restore your computer to its factory state.

You can also download it from the Dell Support website to troubleshoot and fix your computer when it fails to boot into their primary operating system due to software or hardware failures.

For more information about the Dell SupportAssist OS Recovery, see *Dell SupportAssist OS Recovery User's Guide* at www.dell.com/support.

Flashing BIOS (USB key)

Steps

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.

Flashing the BIOS

About this task

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:

Steps

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.

WiFi power cycle

About this task

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

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

Steps

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.

Flea power release

About this task

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:

Steps

1. Turn off your computer.
2. Disconnect the power adapter from your computer.
3. Press and hold the power button for 15 seconds to drain the flea power.
4. Connect the power adapter to your computer.
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 11. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell	
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 https://www.dell.com/support/home/?app=knowledgebase. 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 <i>Me and My Dell</i> at www.dell.com/support/manuals . To locate the <i>Me and My Dell</i> 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.