DELLTechnologies

Latitude 9440 2-in-1

Service Manual

DELLTechnologies

Notes, cautions, and warnings

(i) **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.**

Contents

Working inside your computer

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.**

⚠ **CAUTION: Exercise caution when handling rechargeable Li-ion batteries in laptops. Swollen batteries should not be used and should be replaced and disposed properly.**

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

Before working inside your computer

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. For Windows operating system, 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 disk from your computer, if applicable.
6. Enter the service mode, if you are able to power on your computer.

   Service Mode

   Service Mode is used to cut-off power, without disconnecting battery cable from system board prior conducting repairs in the computer.

   > ⚠ **CAUTION: If you are unable to turn on the computer to put it into Service Mode or the computer does not support Service Mode then proceed to disconnect the battery cable. To disconnect the battery cable, follow the steps in Removing the battery.**

   > ⓘ **NOTE:** Ensure that your computer is shut down and the AC adapter is disconnected.

   a. Hold **<B>** key on the keyboard and press the power button for 3 seconds or until the Dell logo appears on the screen.
   b. Press any key to continue.
   c. If the AC adapter is not disconnected, a message prompting you to remove the AC adapter appears on the screen. Remove the AC adapter and then press any key to continue the **Service Mode** procedure. The **Service Mode** procedure automatically skips the following step if the **Owner Tag** of the computer is not set up in advance by the user.
   d. When the ready-to-proceed message appears on the screen, press any key to proceed. The computer emits three short beeps and shuts down immediately.
   e. Once the computer shuts down, it has successfully entered Service Mode.

   > ⓘ **NOTE:** If you are unable to power on your computer or unable to enter service mode skip this process.

Safety precautions

The safety precautions chapter details the primary steps to be taken before performing any disassembly instructions.

Observe the following safety precautions before you perform any installation or break/fix procedures involving disassembly or reassembly:
● Turn off the system and all attached peripherals.
● Disconnect the system and all attached peripherals from AC power.
● Disconnect all network cables, telephone, and telecommunications lines from the system.
● Use an ESD field service kit when working inside any tabletnotebookdesktop to avoid electrostatic discharge (ESD) damage.
● After removing any system component, carefully place the removed component on an anti-static mat.
● Wear shoes with non-conductive rubber soles to reduce the chance of getting electrocuted.

Standby power

Dell products with standby power must be unplugged before you open the case. Systems that incorporate standby power are essentially powered while turned off. The internal power enables the system to be remotely turned on (wake on LAN) and suspended into a sleep mode and has other advanced power management features.

Unplugging, pressing, and holding the power button for 15 seconds should discharge residual power in the system board.

Bonding

Bonding is a method for connecting two or more grounding conductors to the same electrical potential. This is done through the use of a field service electrostatic discharge (ESD) kit. When connecting a bonding wire, ensure that it is connected to bare metal and never to a painted or non-metal surface. The wrist strap should be secure and in full contact with your skin, and ensure that you remove all jewelry such as watches, bracelets, or rings prior to bonding yourself and the equipment.

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 to 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 to 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.

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.

   ⓘ NOTE: To exit service mode, ensure to connect the AC adapter to the power-adapter port on your computer.

5. Press the power button to turn on the computer. Your computer will automatically return to normal functioning mode.

BitLocker

⚠ 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 reinstall. For more information about this subject, see Knowledge Article: updating the BIOS on Dell systems with BitLocker enabled.**

The installation of the following components triggers BitLocker:
- Hard disk drive or solid state drive
- System board

Removing and installing components

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

SIM card tray

Removing the SIM card tray

Prerequisites

Follow the procedure in Before working inside your computer.

(i) **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.

About this task

The following image provides a visual representation of the SIM card tray removal procedure.
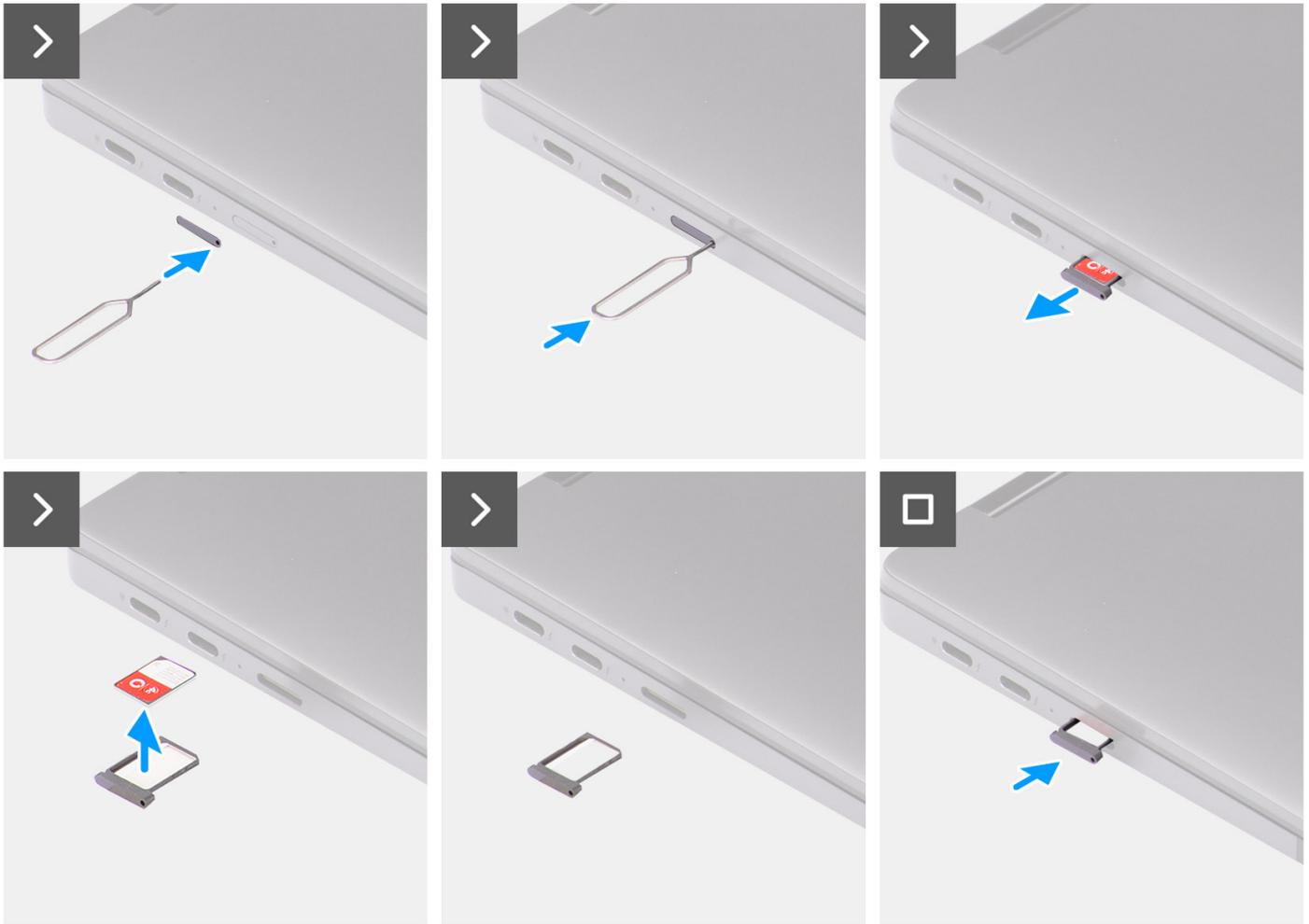
Steps

1. Insert the SIM card removal pin into the release hole to release the SIM card tray.
2. Push the pin to disengage the lock, and eject the SIM card tray.
3. Slide the SIM card tray out of the slot on the system.
4. Remove the Micro-SIM from the SIM card tray.
5. Slide the SIM card tray back into the slot on the system.

Installing the SIM card tray

Prerequisites

If you are replacing a component, remove the necessary component before the installation procedure.

About this task

The following image provides a visual representation of the SIM card tray installation procedure.
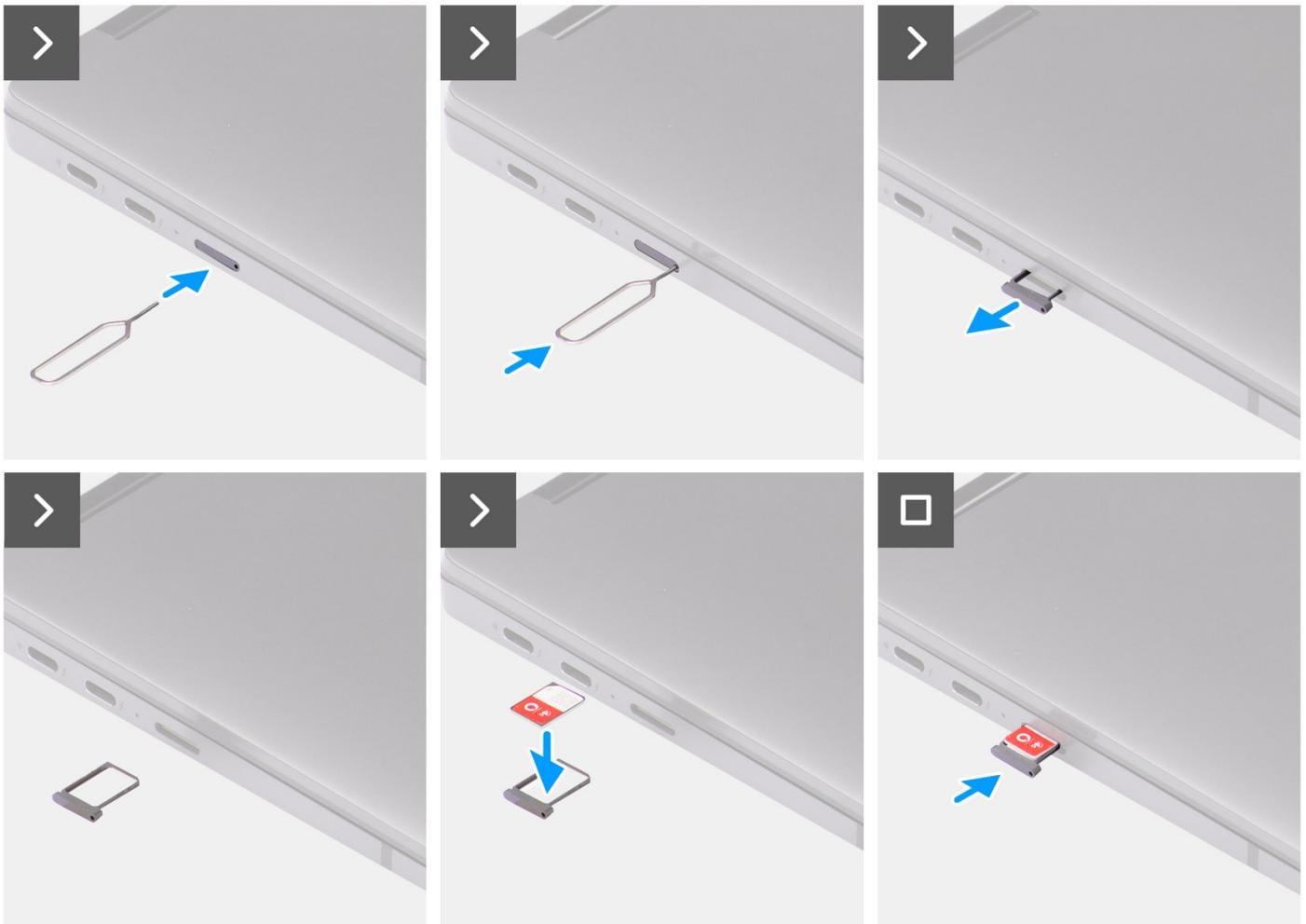
Steps

1. Insert the SIM card removal pin into the release hole to remove the SIM card tray.
2. Push the pin to disengage the lock, and eject the SIM card tray.
3. Slide the SIM card tray out of the slot on the system.
4. Align and place the Micro-SIM card in the dedicated slot on the SIM card tray.
5. Slide the SIM card tray back into the slot on the system.

Next steps

Follow the procedure in After working inside your computer.

ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.

Base cover

Removing the base cover

Prerequisites

1. Follow the procedure in Before working inside your computer.
   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the SIM card tray.

About this task

The following images provide a visual representation of the base cover removal procedure.

6x
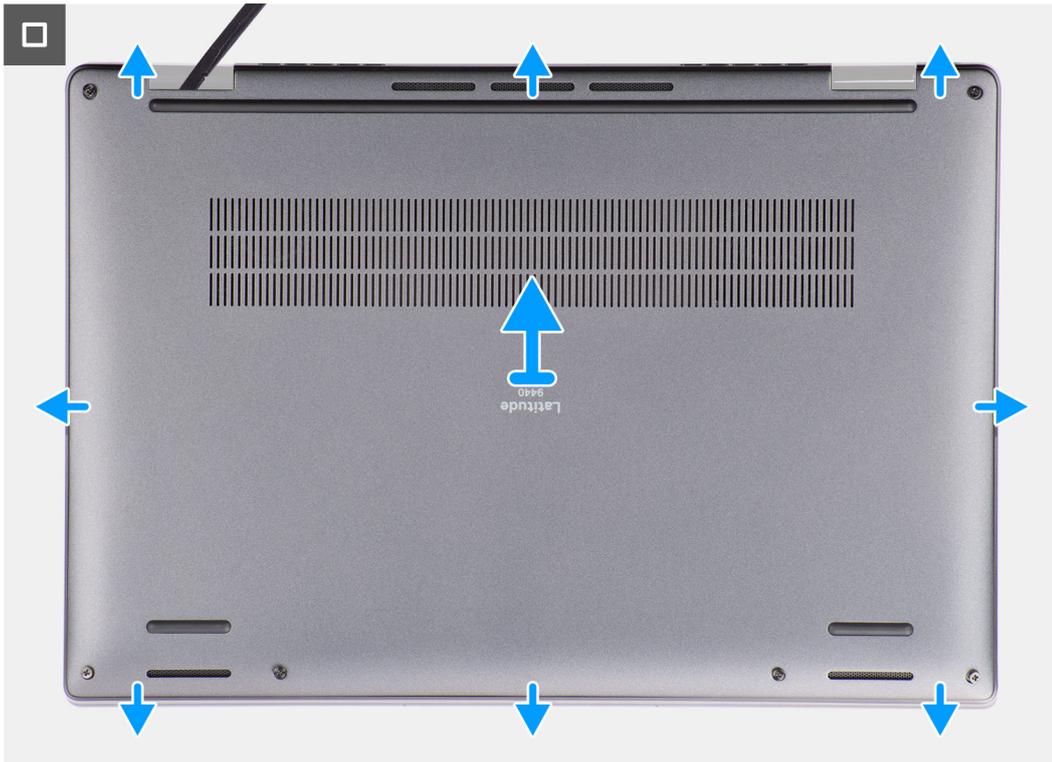
Steps

1. Loosen the six captive screws that secure the base cover to the system.

2. Using a plastic scribe, pry open the base cover starting from the recesses that are located in the U-shaped indents near the hinges at the top edge of the base cover.

   ⓘ **NOTE:** Do not lift the base cover from the top side immediately after prying it from the recesses, as this will cause damage to the base cover. Continue with the following steps to loosen all the hooks that secure the base cover to the system before removing the base cover.

3. Pry open the base cover from the top, left, and right sides of the base cover.

4. Hold the left and right sides of the base cover, and remove the base cover from the system.
5. Using the pull tab disconnect the battery cable from the connector on the system board.

Installing the base cover

Prerequisites

If you are replacing a component, remove the necessary component before the installation procedure.

About this task

The following images provide a visual representation of the base cover installation procedure.
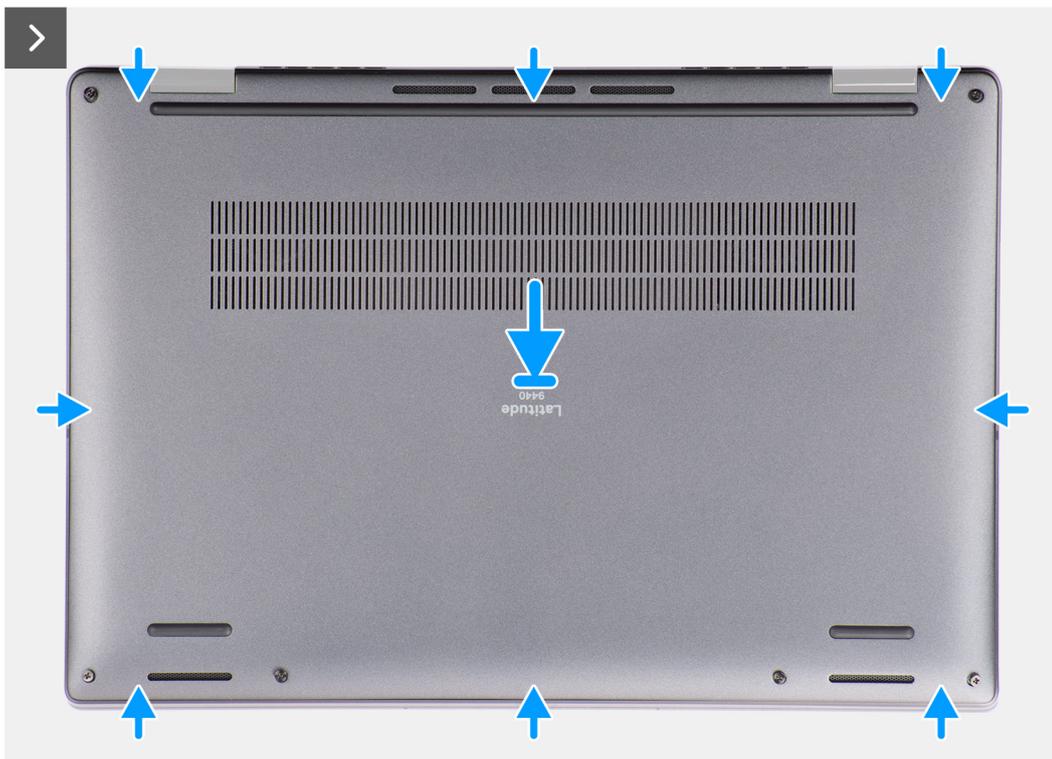
6x

Steps

1. Connect the battery cable to the connector on the system board.
2. Align and place the base cover on the palm-rest assembly, and snap the base cover into place.
3. Tighten the six captive screws to secure the base cover to the system.

Next steps

1. Install the SIM card tray.
2. Follow the procedure in After working inside your computer.

Solid-state drive

## Removing the solid-state drive

Prerequisites

1. Follow the procedure in Before working inside your computer.
   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the solid-state drive and provide a visual representation of the removal procedure.

1x
M1.2x1.5
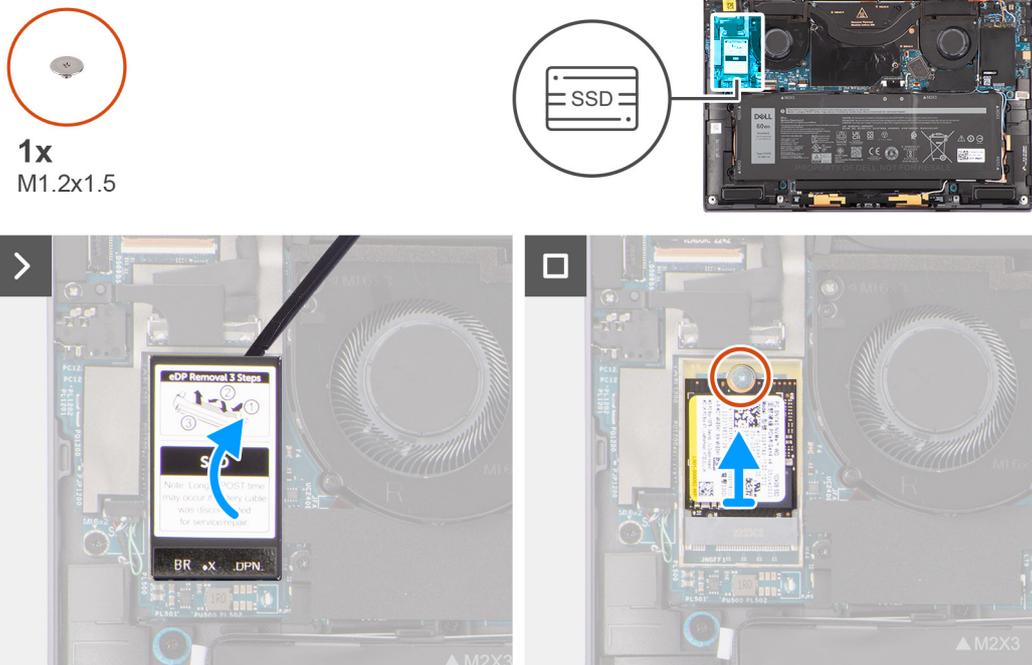
Steps

1. Using a plastic scribe pry open the solid-state drive shielding cover from the recess at the right side of the solid-state drive shielding cover.

2. Remove the single (M1.2x1.5) screw that secures the solid-state drive to the system board.
3. Slide and remove the solid-state drive from the solid-state drive slot on the system board.

Installing the solid-state drive

Prerequisites

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

About this task

The following image indicates the location of the solid-state drive and provides a visual representation of the installation procedure.
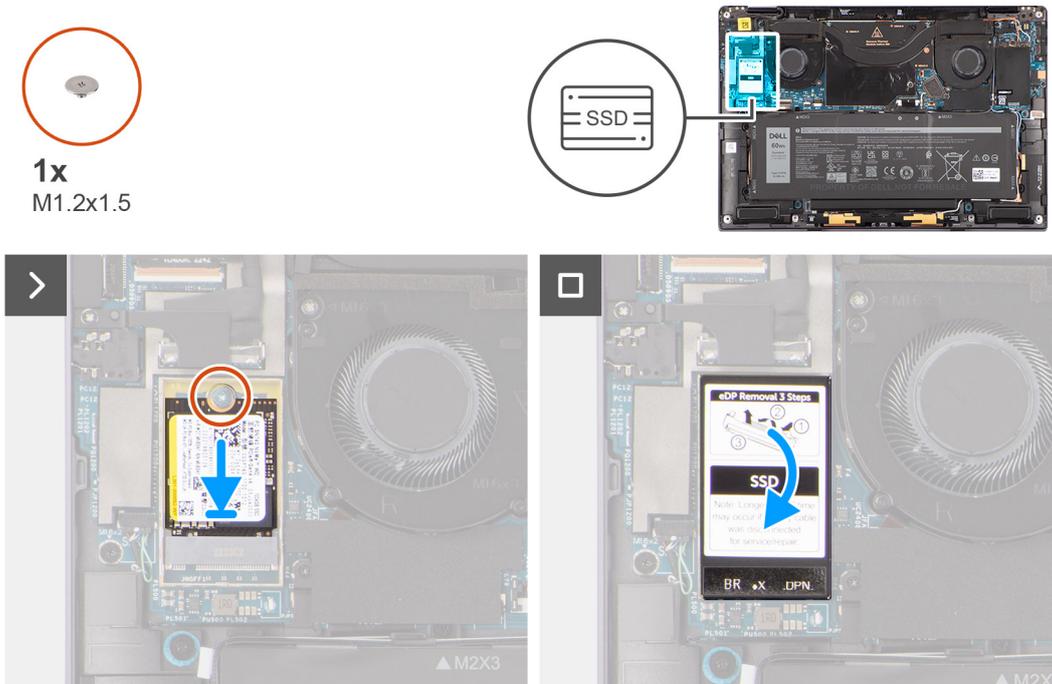
Steps

1. Align the notch on the solid-state drive with the tab on the M.2 card connector.
2. Slide the solid-state drive into the M.2 card connector on the system board.
3. Replace the single (M1.2x1.5) screw to secure the solid-state drive to the system board.
4. Align and place the solid-state drive shielding cover, press to fit it firmly to cover the solid-state drive.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

Wireless Wide Area Network (WWAN) Card

Removing the WWAN card

Prerequisites

1. Follow the procedure in Before working inside your computer.
   > (i) **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the WWAN card and provide a visual representation of the removal procedure.
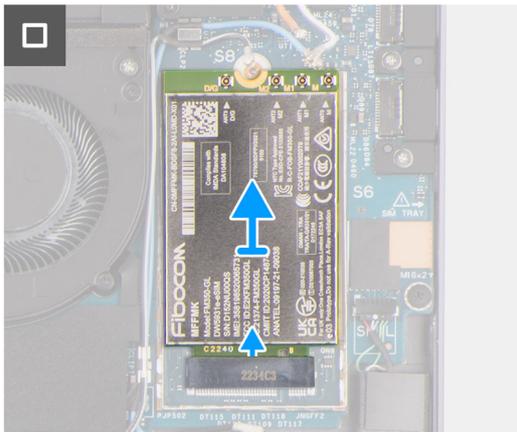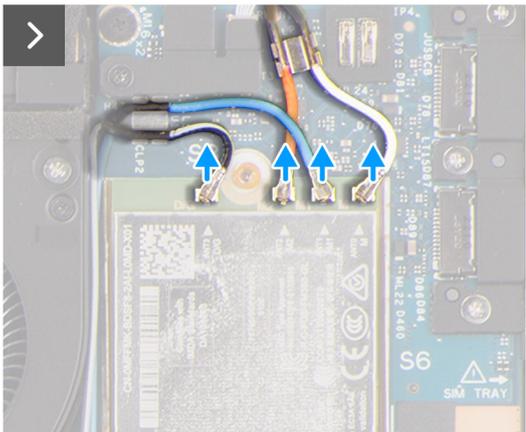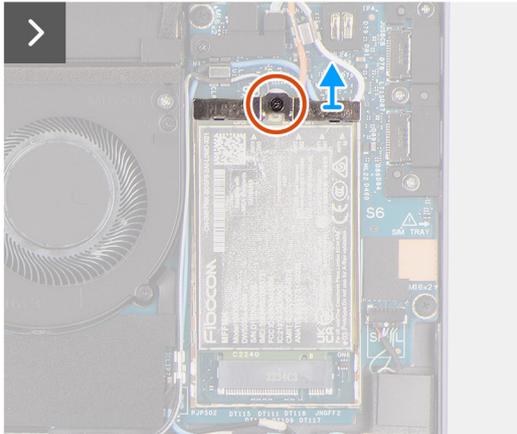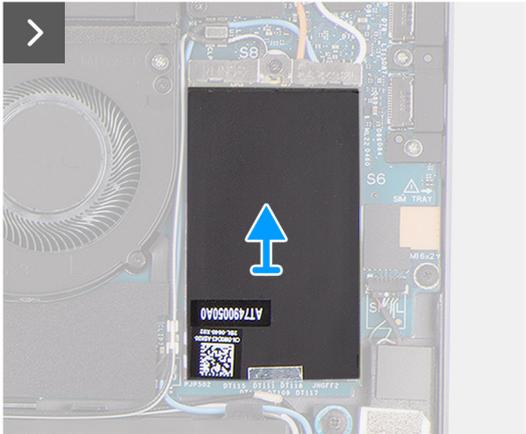
Steps

1. Using a plastic scribe pry open the WWAN card shielding cover from the right edge of the WWAN card shielding cover.

   ⓘ **NOTE:** A thermal pad is included with the WWAN shielding cover and must always be adhered to the cover. If in the process of replacing the WWAN card, the pad is separated from the cover or gets adhered to the card, technicians must re-adhere the thermal pad to the cover before re-installing the cover to the system.

2. Loosen the captive screw that secures the WWAN-card bracket to the system board.
3. Lift the WWAN-card bracket out of the system.
4. Disconnect the antenna cables from the connectors on the WWAN card.
5. Slide and remove the WWAN card from the WWAN-card slot.

Installing the WWAN card

Prerequisites

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

About this task

The following image indicates the location of the WWAN card and provides a visual representation of the installation procedure.
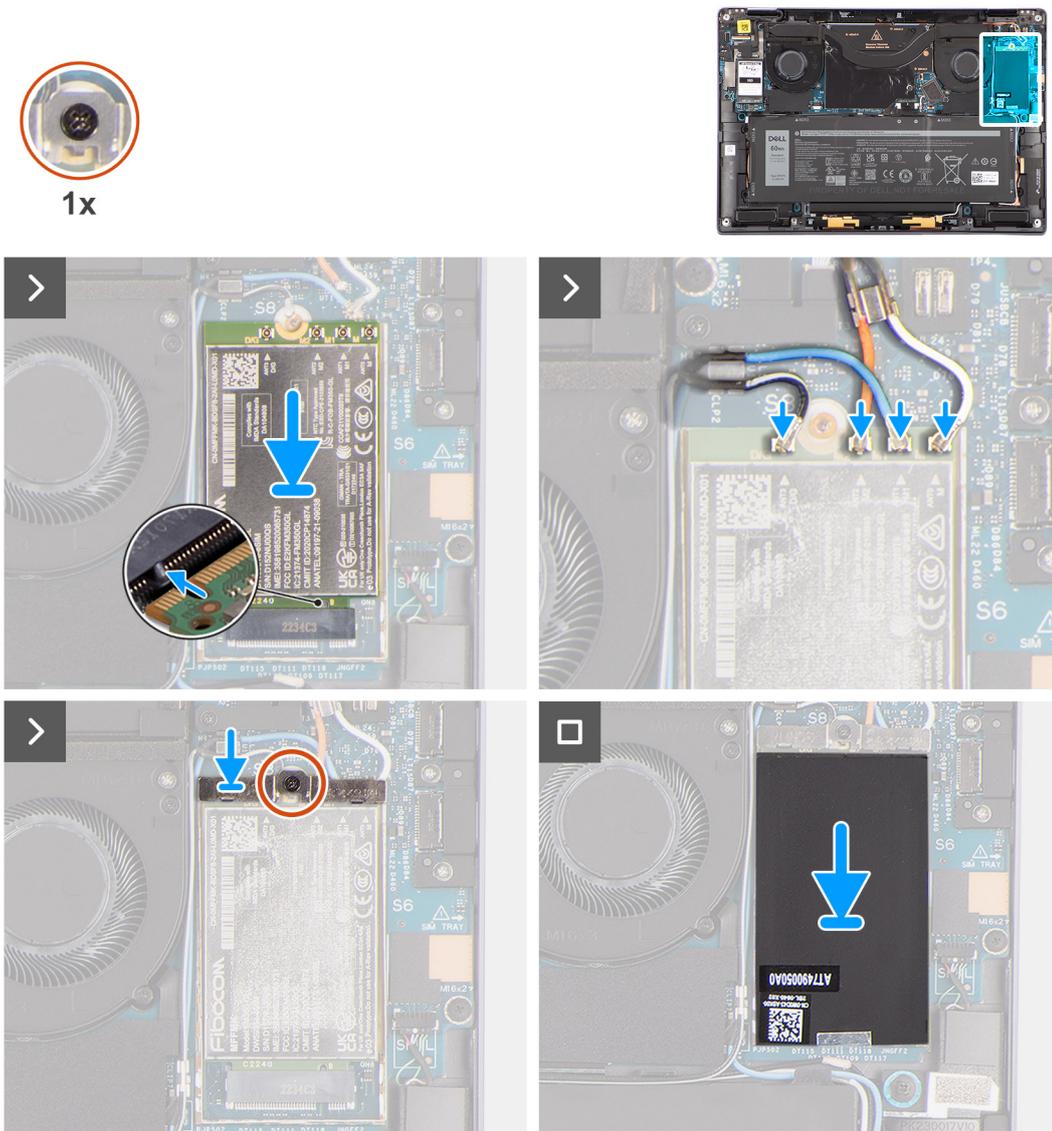
Steps

1. Align the notch on the WWAN card with the tab on the WWAN-card slot.

   ⓘ **NOTE:** If any of the thermal pads located underneath the WWAN card are detached from the system board when removing the WWAN card from the system, adhere them back on the system board.

2. Slide the WWAN card at an angle into the WWAN-card slot.
3. Connect the antenna cables to the connectors on the WWAN card.
4. Align and place the WWAN-card bracket on the system board and WWAN card, and tighten the single captive screw.

   ⓘ **NOTE:** For instructions on how to find your computer's IMEI (International Mobile Station Equipment Identity) number, see the knowledge base article 000143678 at www.dell.com/support.

5. Align and place the WWAN-card shielding cover, press to fit it firmly to cover the WWAN card.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

System fan

## Removing the right fan

Prerequisites

1. Follow the procedure in Before working inside your computer.
   (i) **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.

About this task

The following images indicate the location of the right fan and provide a visual representation of the removal procedure.
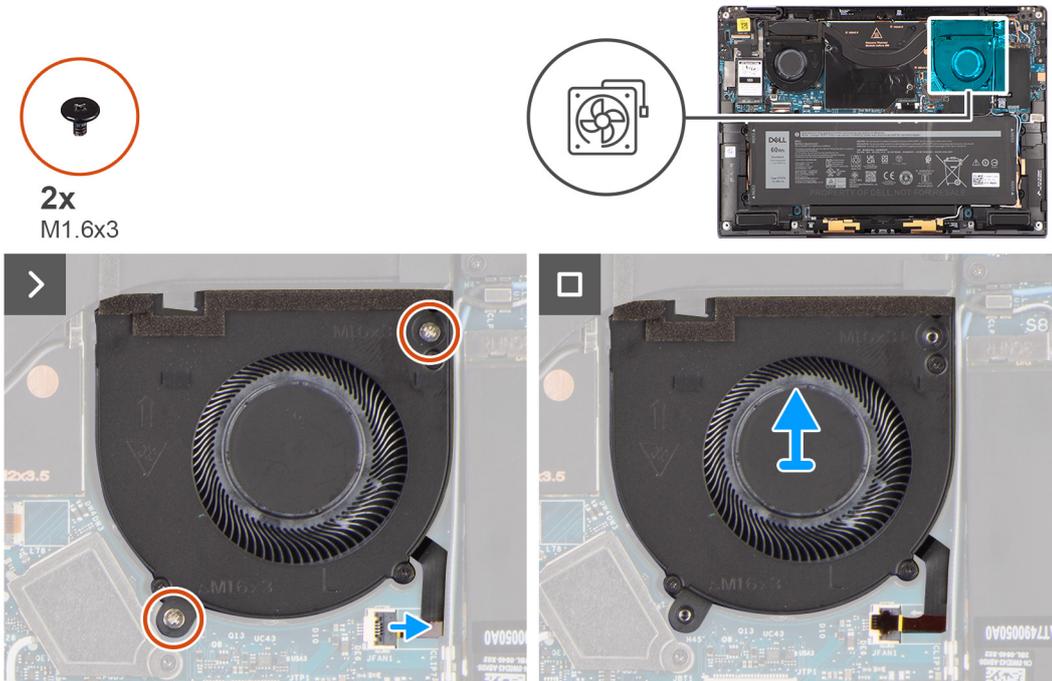
Steps

1. Peel off the mylar sticker from the right fan FPC connector.
2. Disconnect the right fan FPC cable from the connector on the system board.
3. Remove the two (M1.6x3) screws that secure the right fan to the palm-rest assembly.
4. Lift the right fan off the palm-rest assembly.

Installing the right fan

Prerequisites

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

About this task

The following image indicates the location of the right fan and provides a visual representation of the installation procedure.

2x
M1.6x3
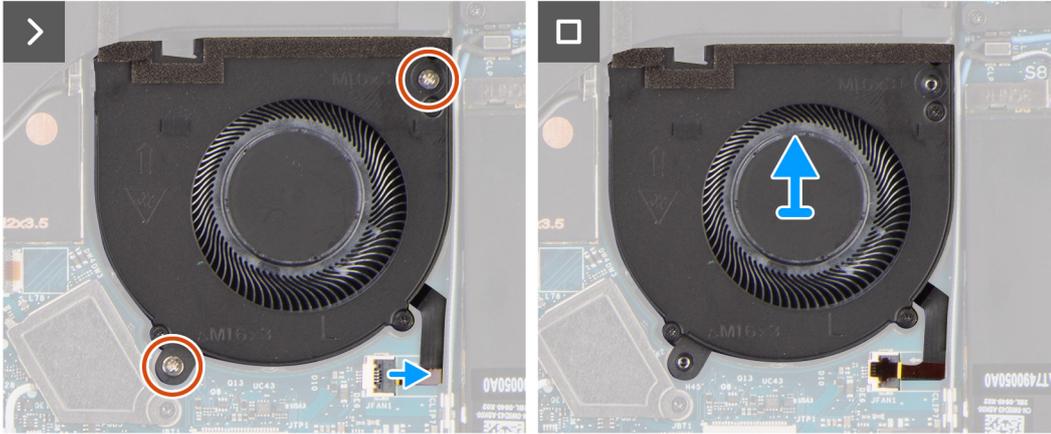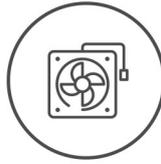
Steps

1. Align and place the right fan onto the palm-rest assembly.
2. Replace the two (M1.6x3) screws to secure the right fan to the palm-rest assembly.
3. Connect the right fan cable to the connector on the system board.
4. Adhere the mylar sticker on the right fan FPC connector.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

# Removing the left fan

Prerequisites

1. Follow the procedure in Before working inside your computer.

   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.

About this task

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

2x
M1.6x3
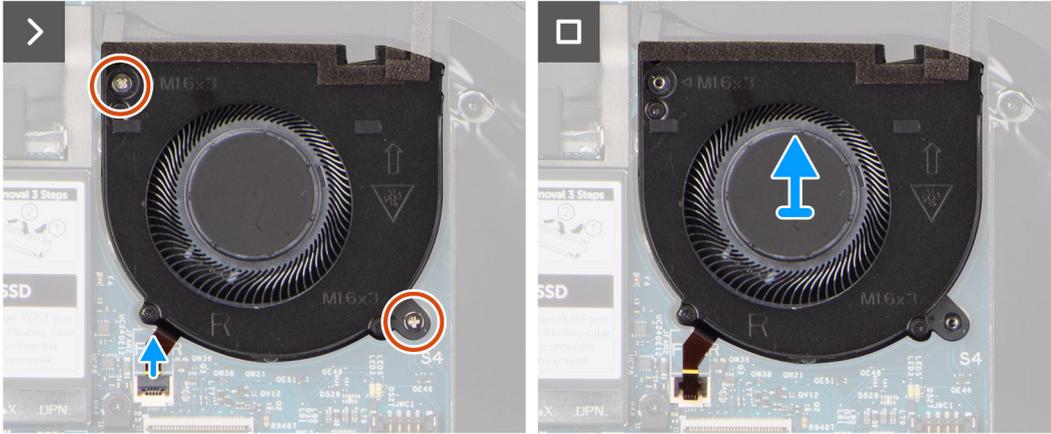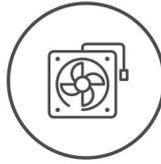
Steps

1. Peel off the mylar sticker from the left fan FPC connector.
2. Disconnect the left fan FPC cable from the connector on the system board.
3. Remove the two (M1.6x3) screws that secure the left fan to the palm-rest assembly.
4. Lift the left fan off the palm-rest assembly.

Installing the left fan

Prerequisites

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

About this task

The following image indicates the location of the left fan and provides a visual representation of the installation procedure.

Steps

1. Align and place the left fan onto the palm-rest assembly.
2. Replace the two (M1.6x3) screws to secure the left fan to the palm-rest assembly.
3. Connect the left fan cable to the connector on the system board.
4. Adhere the mylar sticker on the left fan FPC connector.

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.
   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 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 provide a visual representation of the removal procedure.
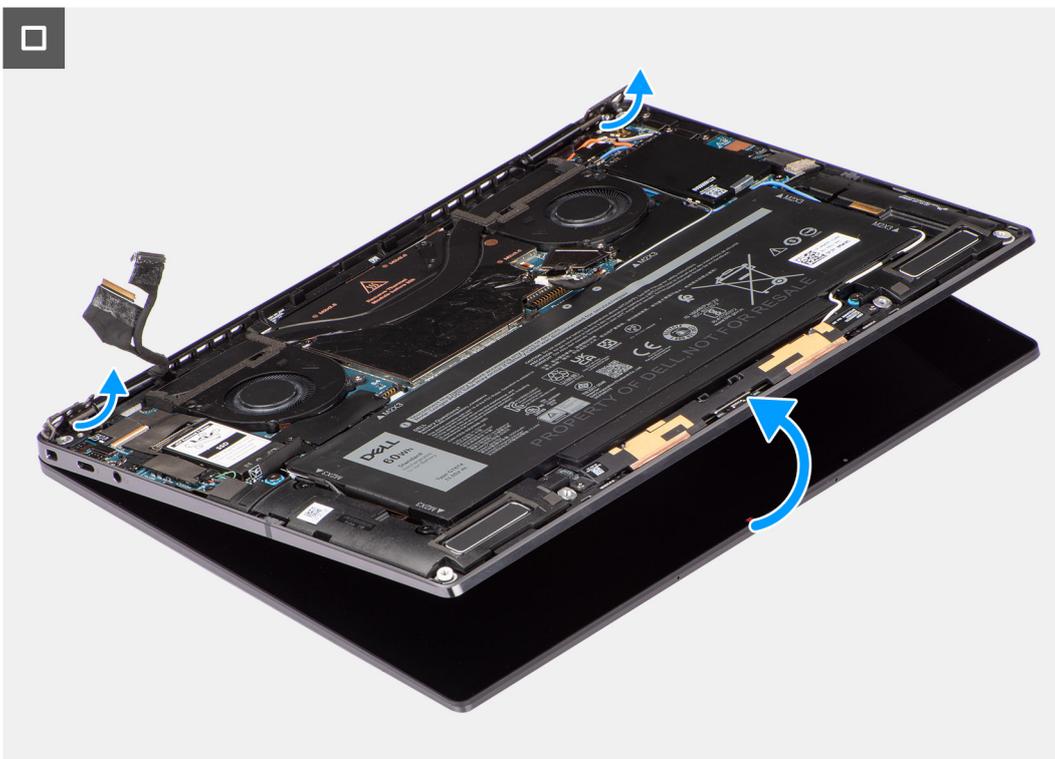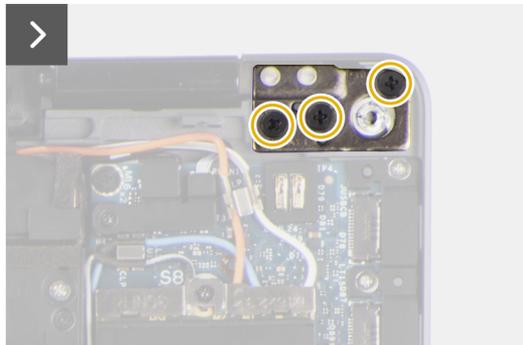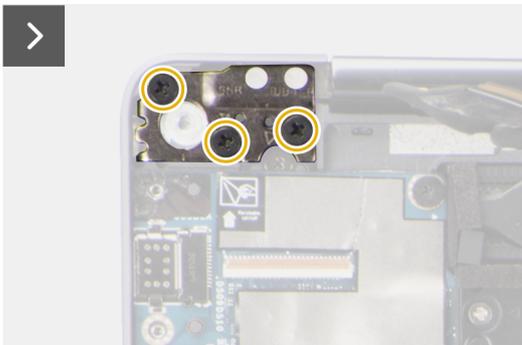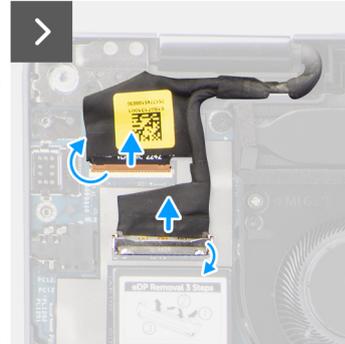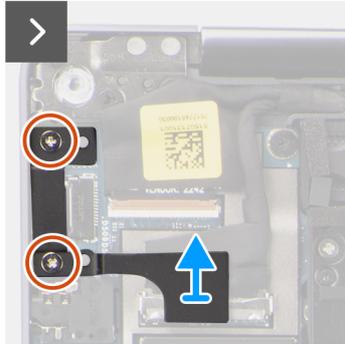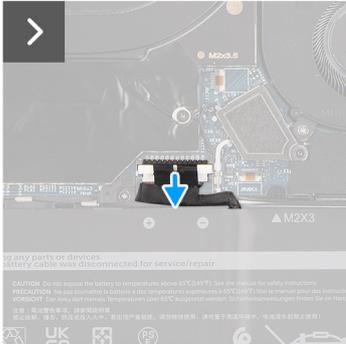
Steps

1. Remove the two (M1.6x3) screws that secure the display cable and Type-C bracket in place.
2. Remove the display cable and Type-C bracket off the computer.
3. Disconnect the camera cable and display cable from the connectors on the system board.

   (i) **NOTE:** The connector for the display cable utilizes a latch that locks it in place on the system board which technicians must flip open in order to disconnect the display cable from the system board. After flipping open the latch, technicians must grasp the left and right sides of the cable's connector head and disconnect the display cable from the system board in a direct upward motion to prevent damage to the connector's pins.

   ⚠ **CAUTION: Do not attempt to disconnect the display cable from the system board without flipping open the latch first.**

4. Open the display assembly to a 90-degree angle and lay the computer on the edge of the table so the palm rest is laying flat on the table and the display assembly is over the edge.
5. Remove the six (M2.5x4) screws that secure the display assembly to the computer, press the edges of the system near the hinges, and lift the hinges in the upward direction away from the computer.
6. Lift the display assembly off the computer.

   (i) **NOTE:** The display assembly is a Hinge-Up Design (HUD) assembly and cannot be further disassembled once it is removed from the bottom chassis. If any components in the display assembly are malfunctioning and need to be replaced, replace the entire display assembly.

Installing the display assembly

Prerequisites

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

About this task

The following image indicates the location of the display assembly and provides a visual representation of the installation procedure.
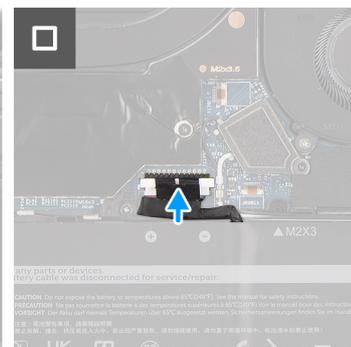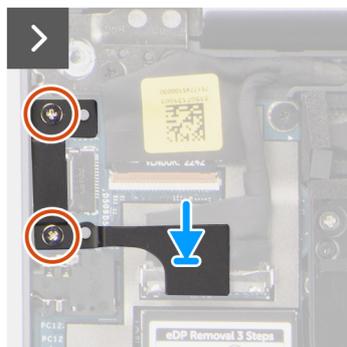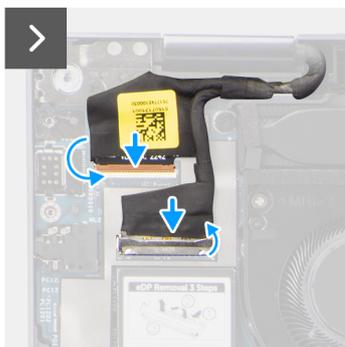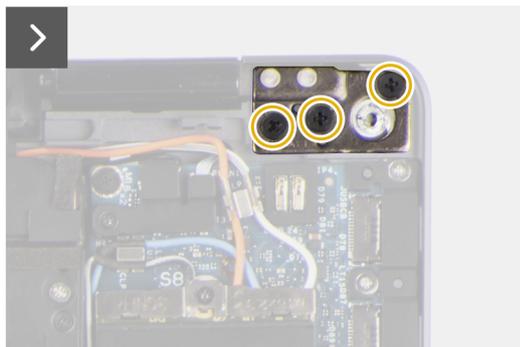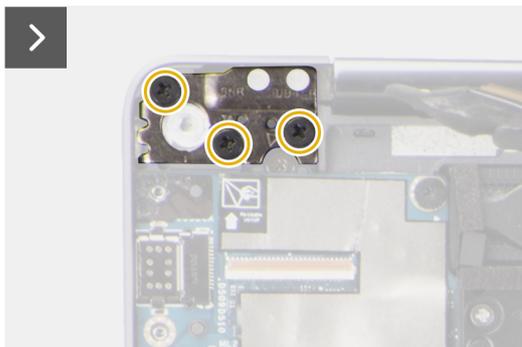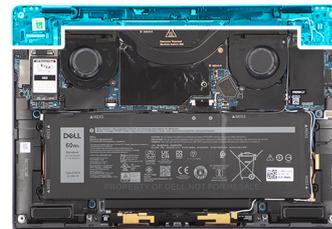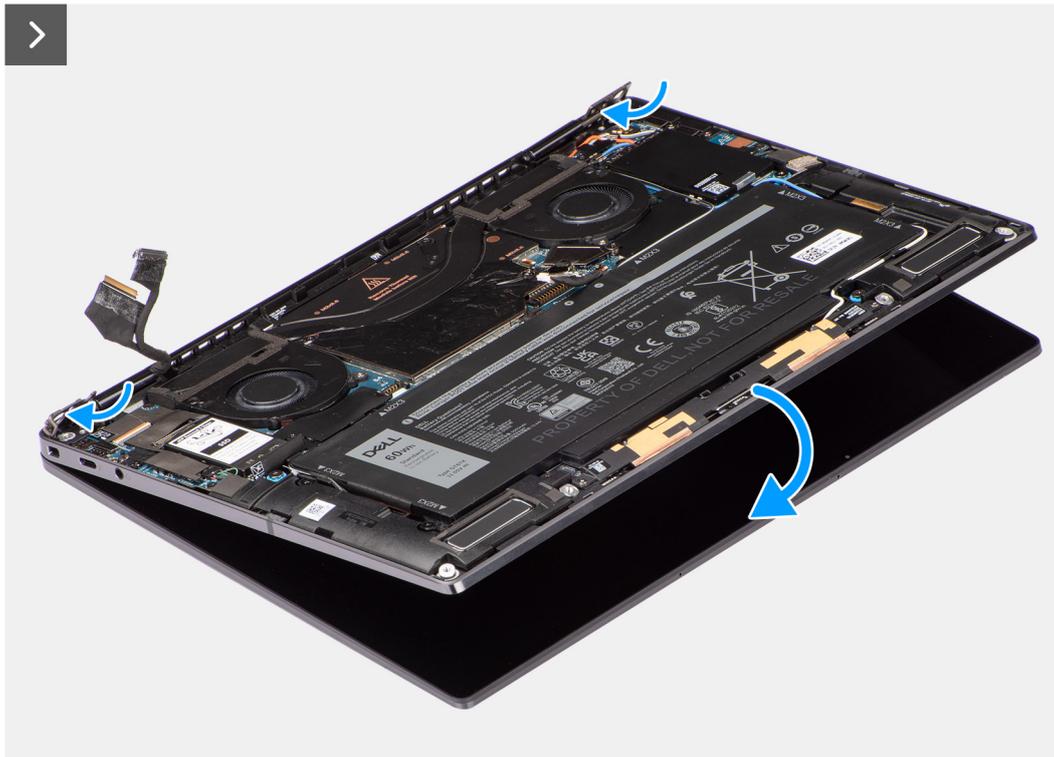
Steps

1. Align and place the palm-rest assembly under the hinges of the display assembly.
2. Replace the six (M2.5x4) screws to secure the display assembly to the system.
3. Connect the display and camera cable to the connectors on the system board.
4. Replace the two (M1.6x3) screws to secure the display cable and Type-C bracket in place.

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.
   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.

About this task

The following image indicates the location of the heat sink and provides a visual representation of the removal procedure.
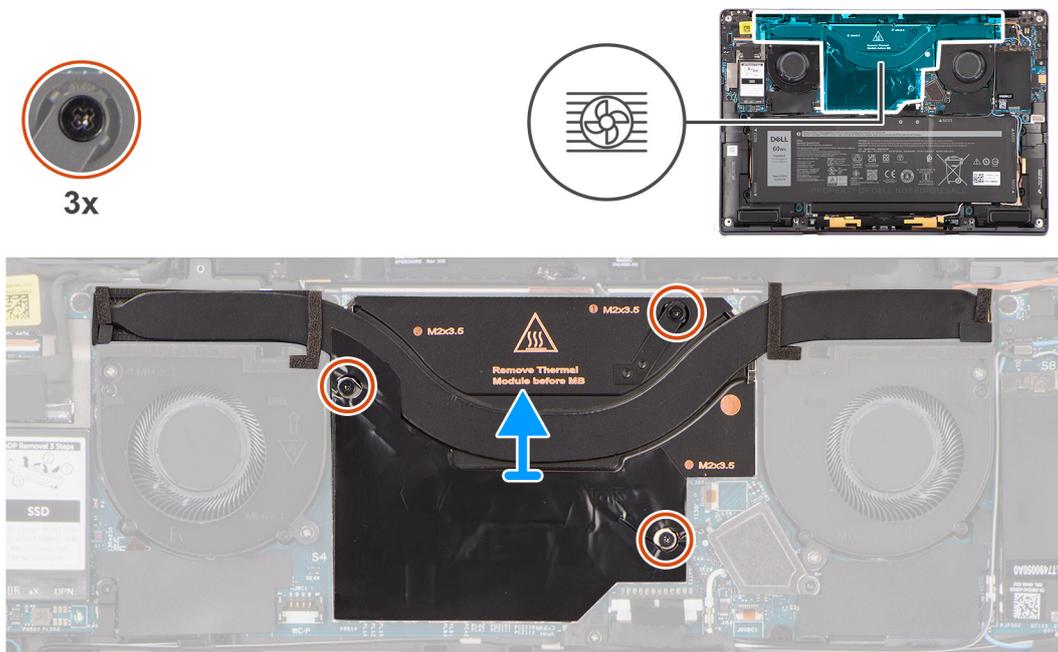
ⓘ **NOTE:** To remove the heatsink shielding cover, pry it open from the recess located at its top right corner.

Steps

1. In Descending order (3>2>1), loosen the three captive screws that secure the heat sink to the system board.
2. Lift the heat sink off the system board.

Installing the heat sink

Prerequisites

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

About this task

The following image indicates the location of the heat sink and provides a visual representation of the installation procedure.
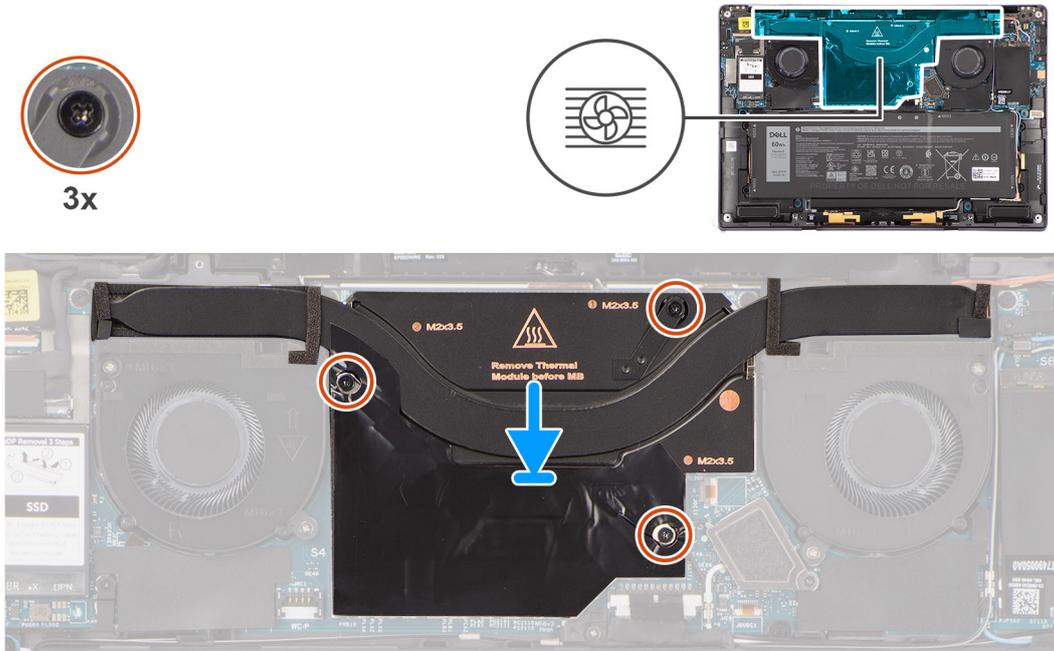
Steps

1. Align the screw holes on the heat sink with the screw holes on the system board.
2. In Ascending order (1>2>3), tighten the three captive screws that secure the heat sink to the system board.

Next steps

1. Install the base cover.
2. Follow the procedure in After working inside your computer.

Battery

Rechargeable Li-ion battery precautions

⚠ **CAUTION:**
- **Exercise caution when handling rechargeable Li-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 rechargeable Li-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.**
- **Swollen batteries should not be used and should be replaced and disposed properly. For guidelines on how to handle and replace swollen rechargeable Li-ion batteries, see Handling swollen rechargeable Li-ion batteries.**

Removing the battery

Prerequisites

1. Follow the procedure in Before working inside your computer.
   (i) **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.
3. Remove the WWAN card.

(i) **NOTE:** If battery was disconnected from system board for service, there will be a delay during system boot-up as the system will undergo RTC battery reset.

About this task

The following images indicate the location of the battery and provide a visual representation of the removal procedure.
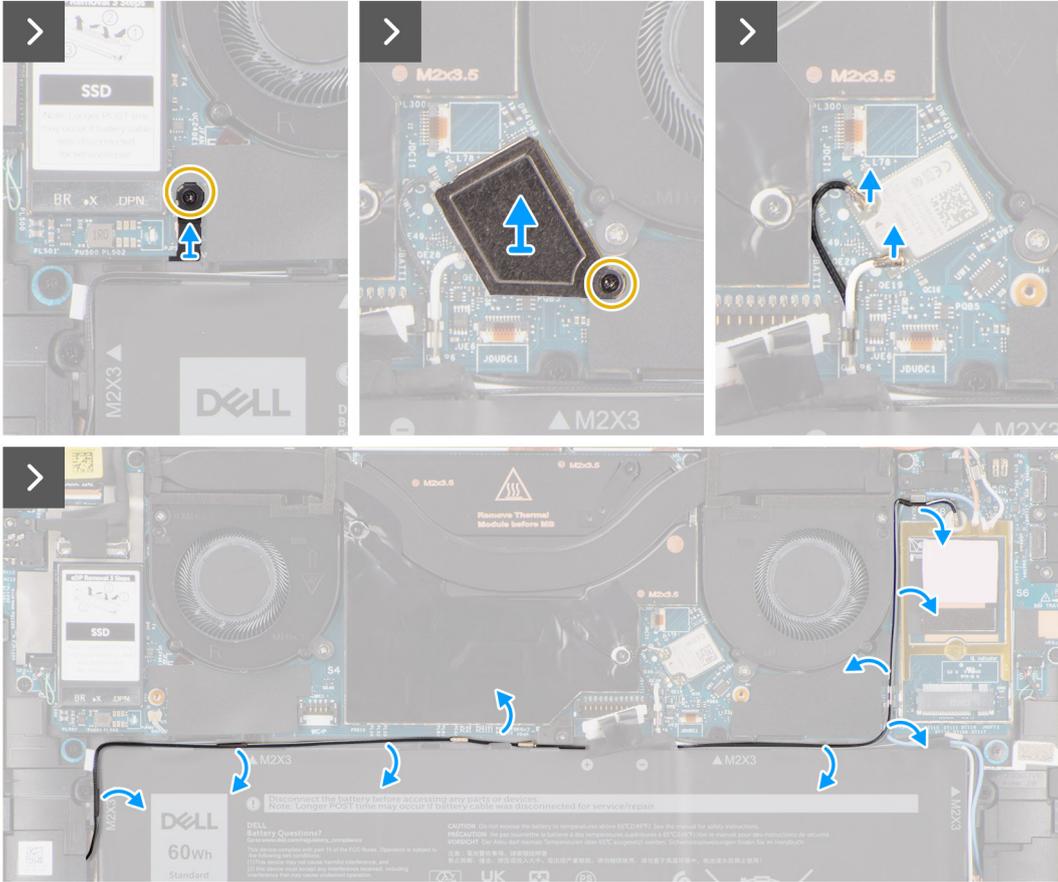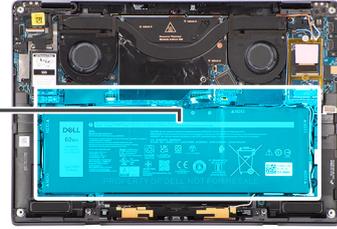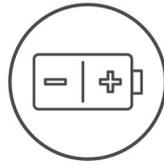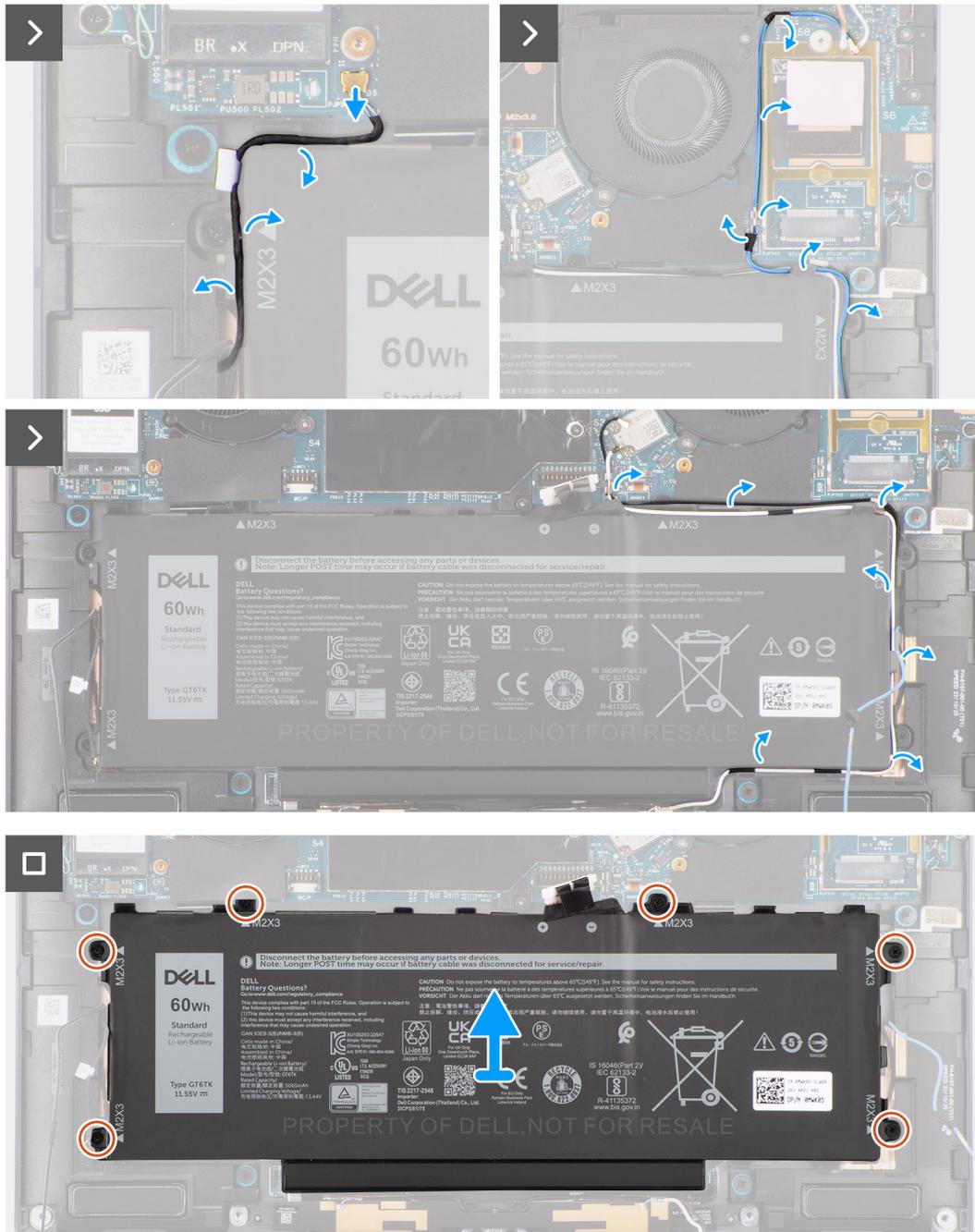
Figure 1.

Steps

1. Peel off the two pieces of tape securing the gray WWAN antenna cable in place at the bottom side of CPU shielding cover and unroute the wireless antenna cables from the routing guides on the system board and the routing guides along the top side of the battery.
2. Peel off the piece of tape securing the WLAN antenna cables in place at the top side of the battery.
3. Loosen the single captive screw securing the WLAN bracket to the system board.
4. Lift the WLAN bracket off the system board.
5. Disconnect the antenna cables connected to the WLAN module.
6. Unroute the WLAN antenna cables and blue WWAN antenna cable from the metal clips on the system board and the routing guides along the sides of the battery.

> (i) **NOTE:** The cables for the WLAN antennas are routed over the plastic bracket at the upper right corner and within the routing guides along the bottom right side of the battery. You must be careful when unrouting the antenna cables from their routing guides while they are still attached to the wireless card.

7. Disconnect the speaker cable from the connector on the system board and unroute the speaker cable from the routing guides along the top side of the battery.
8. Peel off the piece of tape securing the speaker cable in place at the left side of the battery.
9. Unroute the speaker cables from the routing guides at the left and right side of the battery.
10. Remove the single (M1.6x3) screw and four (M2x4) screws that secures the battery to the plam-rest assembly.
11. Lift the battery away from the computer.

Installing the battery

**Prerequisites**

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

About this task

The following image indicates the location of the battery and provides a visual representation of the installation procedure.

> (i) **NOTE:** If battery was disconnected from system board for service, there will be a delay during system boot-up as the system will undergo RTC battery reset.
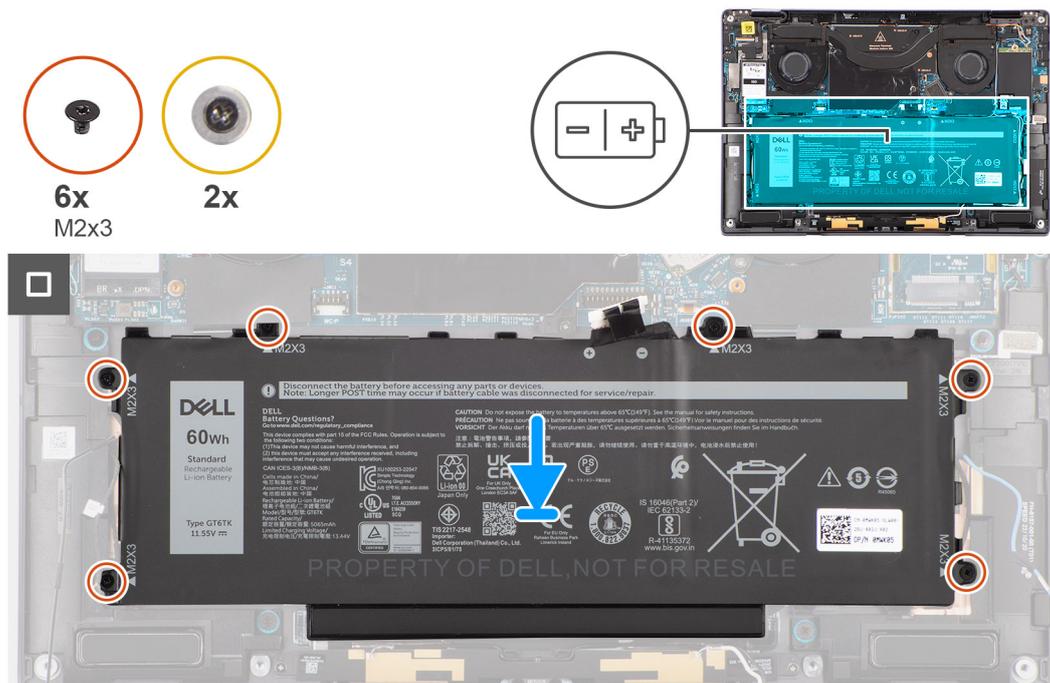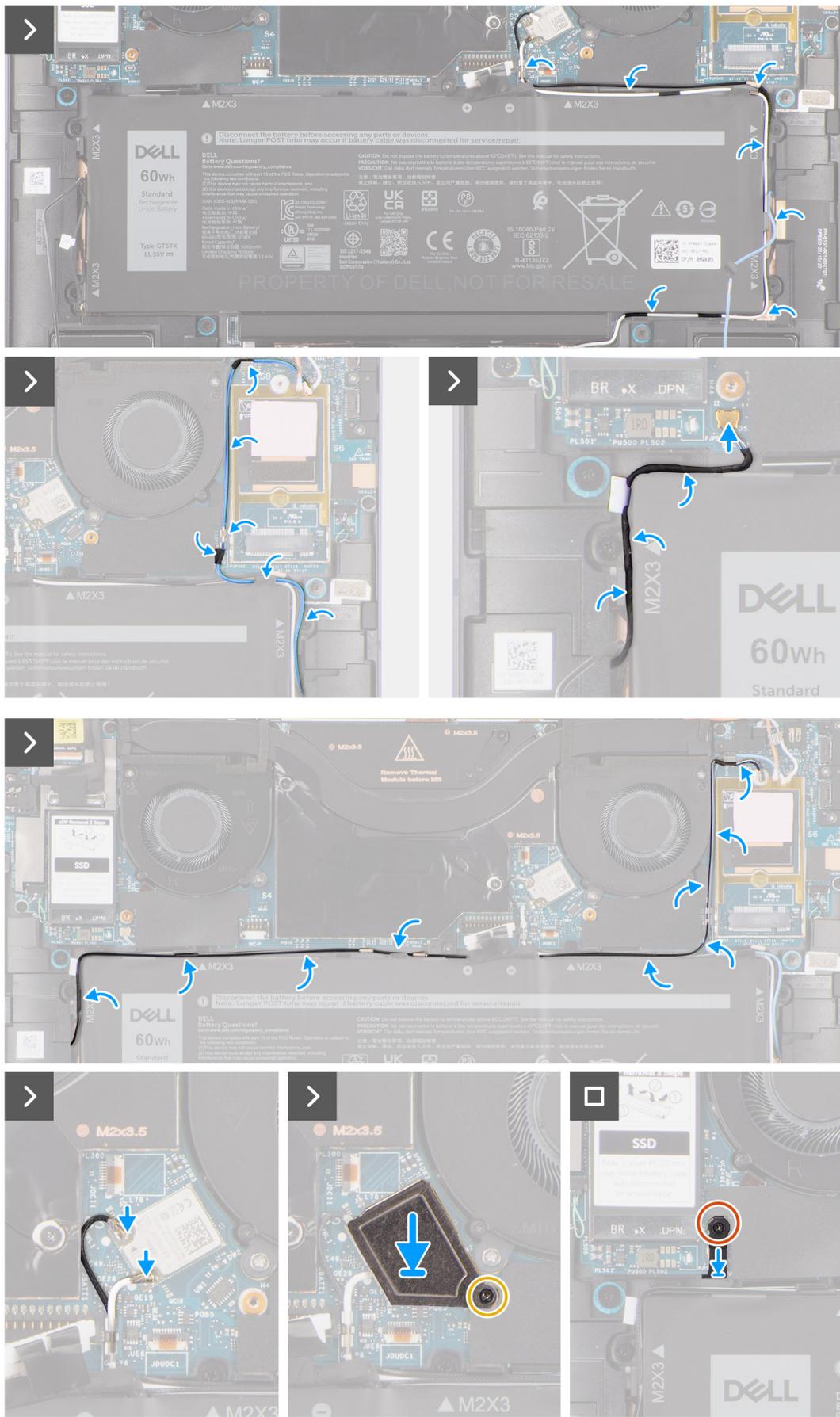
Figure 2.

Steps

1. Align and place the battery on the palm-rest assembly.
2. Replace the single (M1.6x3) screw and four (M2x4) screws to secure the battery to the palm-rest assembly.
3. Reconnect the battery cable to the connector on the system board.
4. Route the speaker cables in the routing guides at the left and right side of the battery.
5. Adhere the piece of tape securing the speaker cable in place at the left side of the battery.
6. Route the speaker cable in the routing guides along the top side of the battery and connect the speaker cable to the connector on the system board.
7. Route the WLAN antenna cables and blue WWAN antenna cable in the metal clips on the system board and the routing guides along the sides of the battery.
8. Connect the antenna cables to the WLAN module.
9. Align and place the WLAN bracket on the system board.
10. Tighten the single captive screw securing the WLAN bracket to the system board.
11. Adhere the piece of tape securing the WLAN antenna cables in place at the top side of the battery.
12. Adhere the two pieces of tape securing the gray WWAN antenna cable in place at the bottom side of CPU shielding cover and route the wireless antenna cables in the routing guides on the system board and the routing guides along the top side of the battery.

Next steps

1. Install the WWAN card.
2. Install the base cover.
3. Follow the procedure in After working inside your computer.

Speakers

Removing the left speaker

Prerequisites

1. Follow the procedure in Before working inside your computer.
   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.
3. Remove the WWAN card if applicable.
4. Remove the battery.

About this task

ⓘ **NOTE:** For systems shipped with WWAN antennas, left speaker is part of the palm-rest assembly and are not separate replaceable parts.

ⓘ **NOTE:** For systems shipped with WLAN card, left speaker is a separate replaceable part. The following procedure is applicable for systems shipped with WLAN card only.

The following images indicate the location of the speaker and provide a visual representation of the removal procedure.

Steps

1. Peel the tape securing the left speaker cable to the chassis.
2. Disconnect the left speaker cable from connector on the system board.
3. Remove the two (M1.6x1.8) screws that secure the left speaker in place.
4. Lift the left speaker off the chassis.

Installing the left speaker

Prerequisites

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

About this task

ⓘ **NOTE:** For systems shipped with WWAN antennas, left speaker is part of the palm-rest assembly and are not separate replaceable parts.

ⓘ **NOTE:** For systems shipped with WLAN card, left speaker is a separate replaceable part. The following procedure is applicable for systems shipped with WLAN card only.

The following image indicates the location of the speaker and provides a visual representation of the installation procedure.
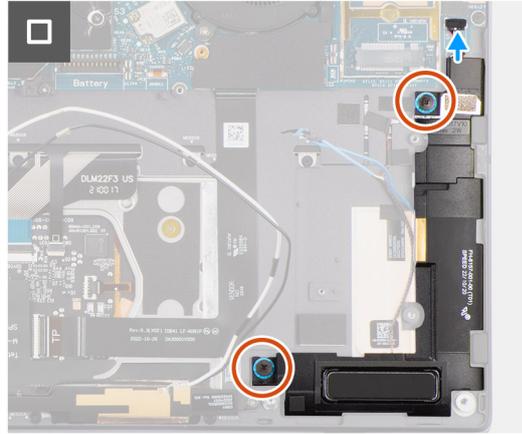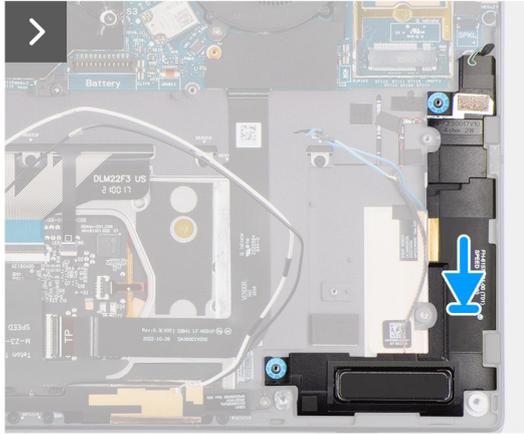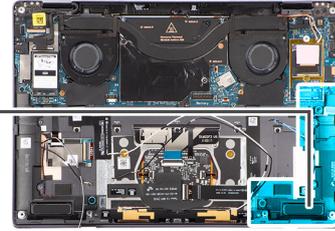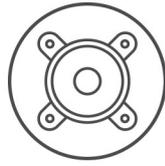
Steps

1. Align and place the left speaker into the slot on the chassis.
2. Replace the two (M1.6x1.8) screws to secure the left speaker to the system.
3. Connect the left speaker cable to connector on the system board.
4. Adhere the tape to secure the left speaker cable to the chassis.

   When installing the left and right speakers, secure the speaker cables in place with pieces of tape adhered to the palm rest.
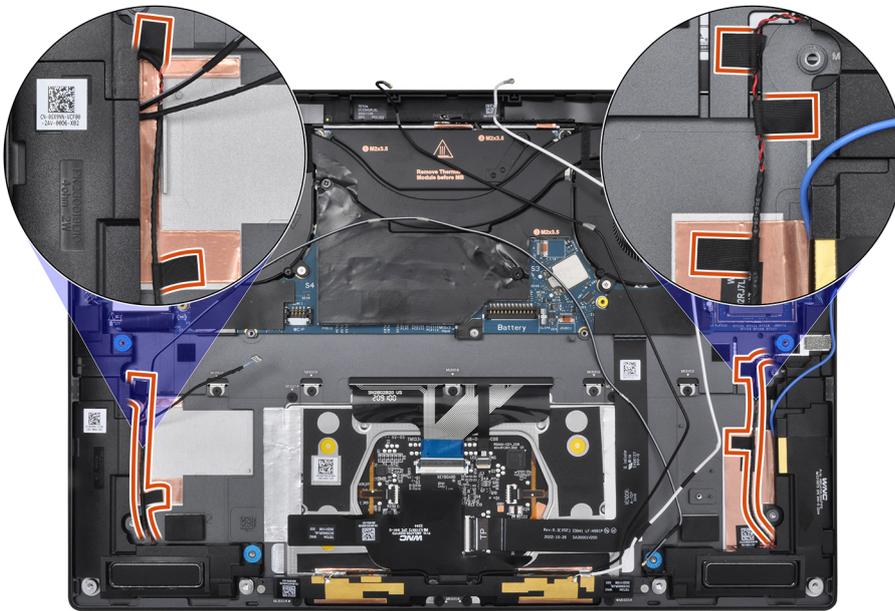
Next steps

1. Install the battery.
2. Install the WWAN card if applicable.
3. Install the base cover.
4. Follow the procedure in After working inside your computer.

Removing the right speaker

Prerequisites

1. Follow the procedure in Before working inside your computer.
   - ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.
3. Remove the WWAN card if applicable.
4. Remove the battery.

About this task

The following images indicate the location of the right speaker and provide a visual representation of the removal procedure.
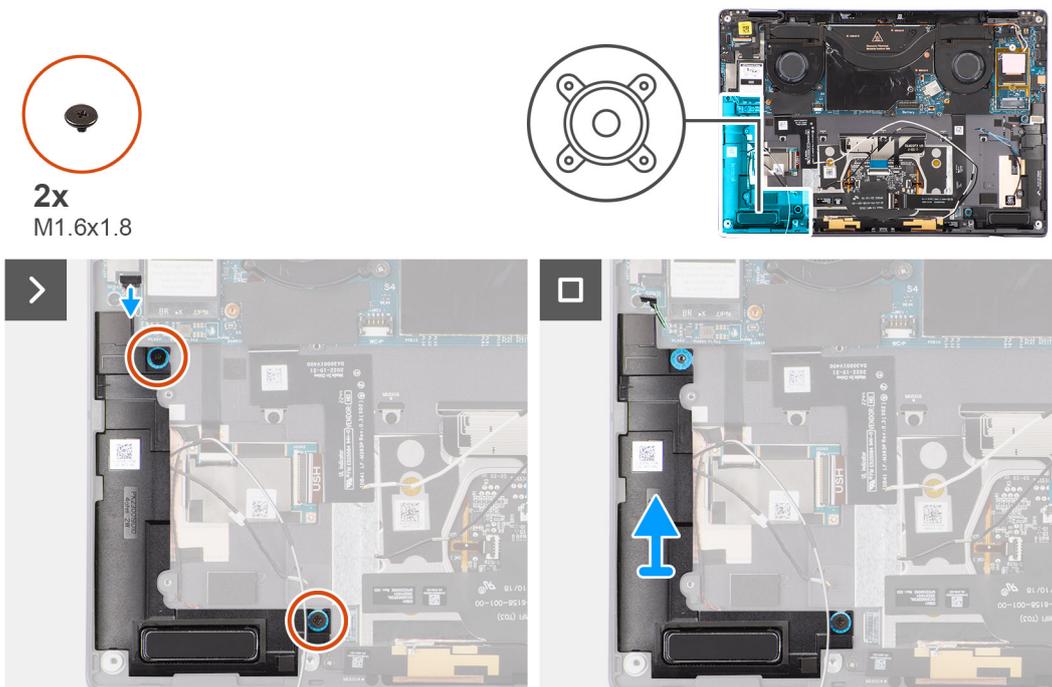
Steps

1. Peel the tape that secures the right speaker cable to the chassis.
2. Disconnect the right speaker cable from connector on the system board.
3. Remove the two (M1.6x1.8) screws that secure the right speaker in place.
4. Peel the tape that secures the right speaker to the chassis.
5. Lift the right speaker off the chassis.

Installing the right speaker

Prerequisites

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

About this task

The following image indicates the location of the speaker and provides a visual representation of the installation procedure.
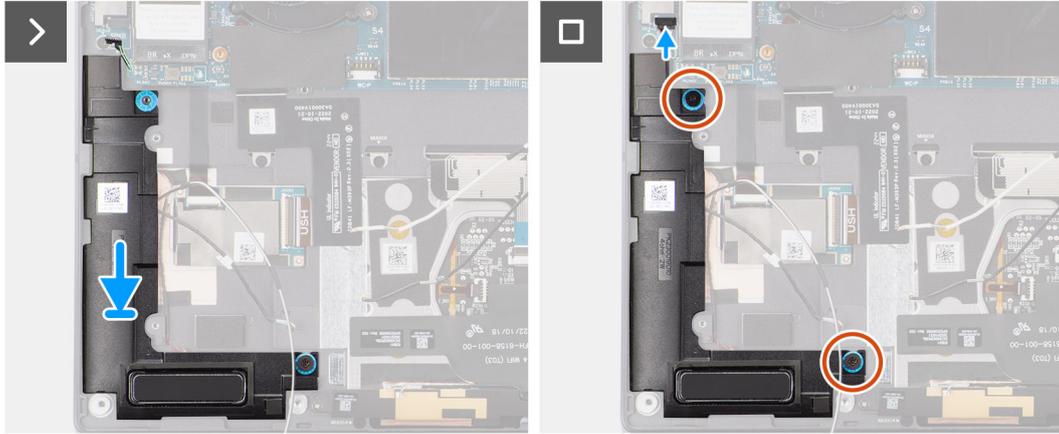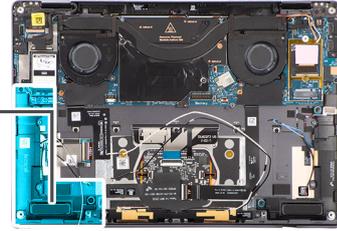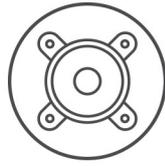
Steps

1. Align and place the right speaker into the slot on the chassis.
2. Replace the two (M1.6x1.8) screws to secure the right speaker to the system.
3. Adhere the tape to secure the right speaker to the chassis.
4. Connect the right speaker cable to connector on the system board.
5. Adhere the tape to secure the right speaker cable to the chassis.

   When installing the left and right speakers, secure the speaker cables in place with pieces of tape adhered to the palm rest.
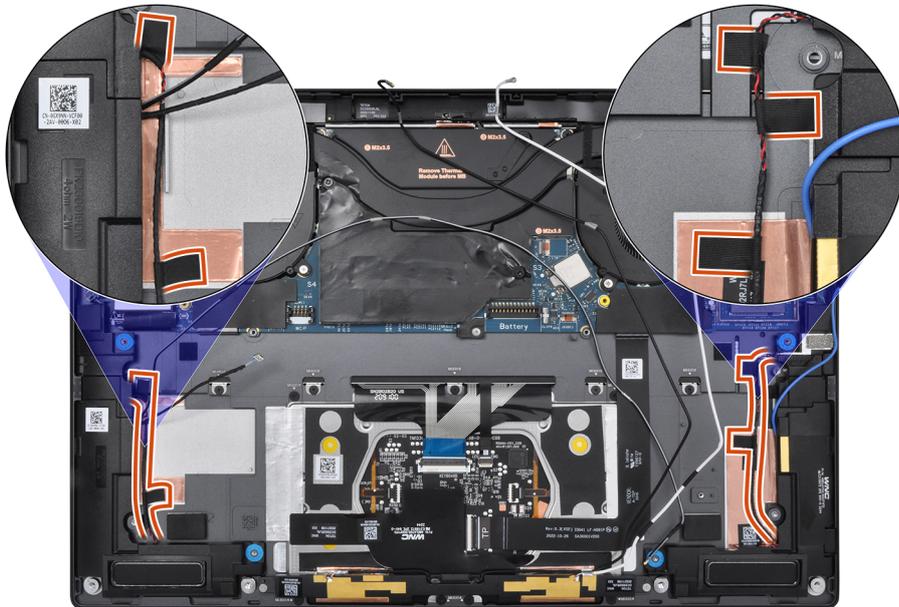
Next steps

1. Install the battery.
2. Install the WWAN card if applicable.
3. Install the base cover.

4. Follow the procedure in After working inside your computer.

Wireless Local Area Network (WLAN) Antenna module

Removing the WLAN antenna module

Prerequisites

1. Follow the procedure in Before working inside your computer.
   - ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the base cover.
3. Remove the WWAN card if applicable.
4. Remove the battery.

About this task

The following images indicate the location of the WLAN antenna module and provide a visual representation of the removal procedure.
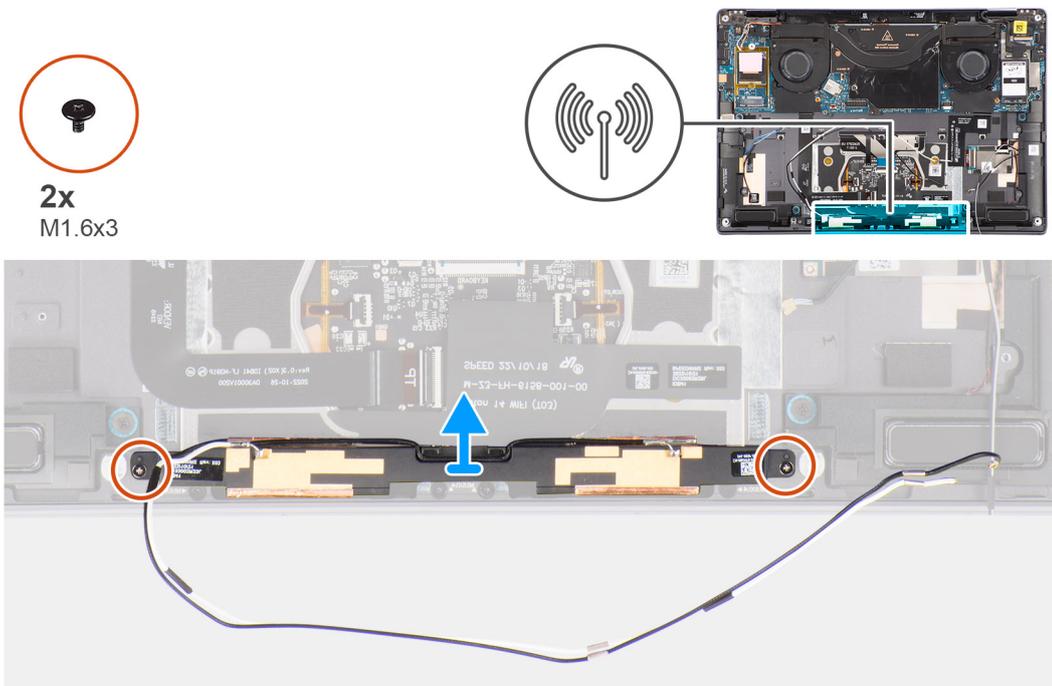
Steps

1. Peel off the piece of tape that secures the WLAN antenna module to the palm-rest assembly.
2. Remove the two (M1.6x3) screws that secure the WLAN antenna module to the palm-rest assembly.
3. Lift and remove the WLAN antenna module off the system.

Installing the WLAN antenna module

Prerequisites

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

About this task

The following image indicates the location of the WLAN antenna module and provides a visual representation of the installation procedure.
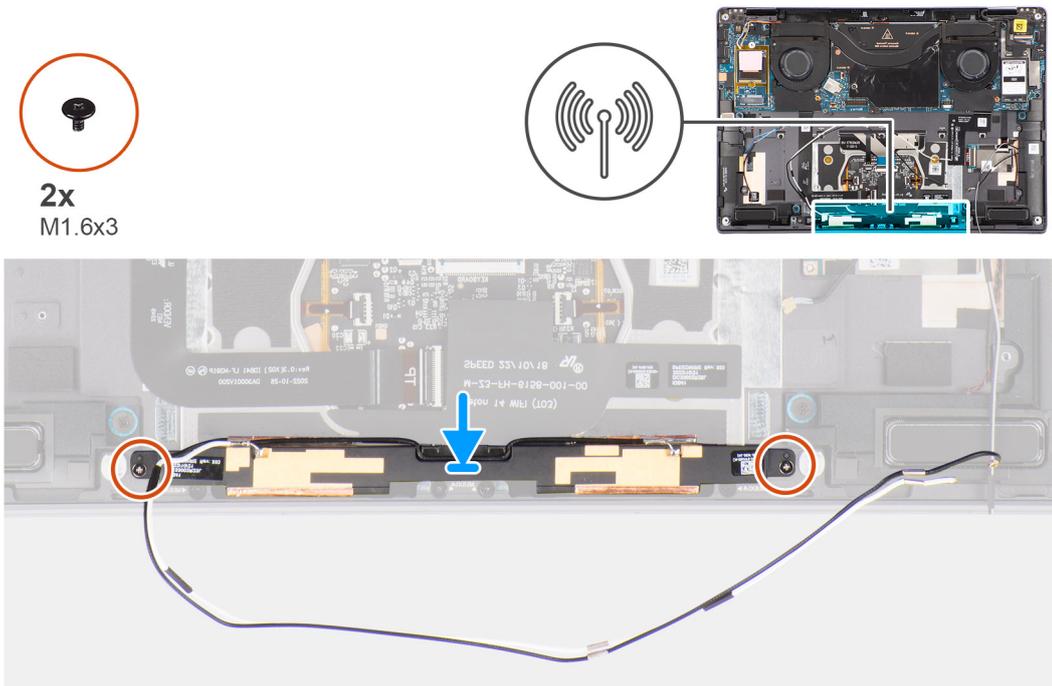
Steps

1. Align and place the WLAN antenna module in the slot on the system.
2. Replace the two (M1.6x3) screws to secure the WLAN antenna module to the palm-rest assembly.
3. Adhere the piece of tape that secures the WLAN antenna module to the palm-rest assembly.

Next steps

1. Install the battery.
2. Install the WWAN card if applicable.
3. Install the base cover.
4. 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.
   (i) **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the SIM card tray if applicable.
3. Remove the base cover.
4. Remove the solid-state drive.
5. Remove the WWAN card if applicable.
6. Remove the right fan.
7. Remove the left fan.
8. Remove the heat sink.

9. Remove the battery.

About this task

⚠️ **CAUTION: The heatsink must be first removed before removing the system board, as there are two (M1.6x2) screws underneath the heatsink that secure the system board to the chassis.**
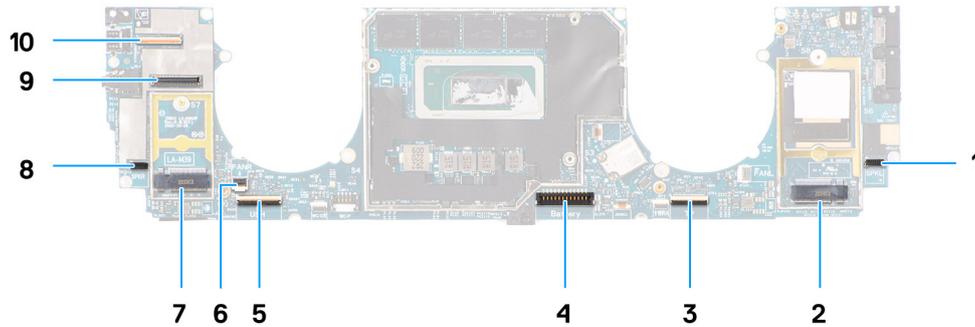
1. Right speaker cable connector
2. WWAN card connector
3. Touchpad cable connector
4. Battery cable connector
5. USH I/O board cable connector
6. Left fan cable connector
7. M.2 2230 solid-state drive connector
8. Left speaker cable connector
9. Display cable connector
10. Camera cable connector

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

6x M1.6x3 **6x** M1.6x2 **1x**
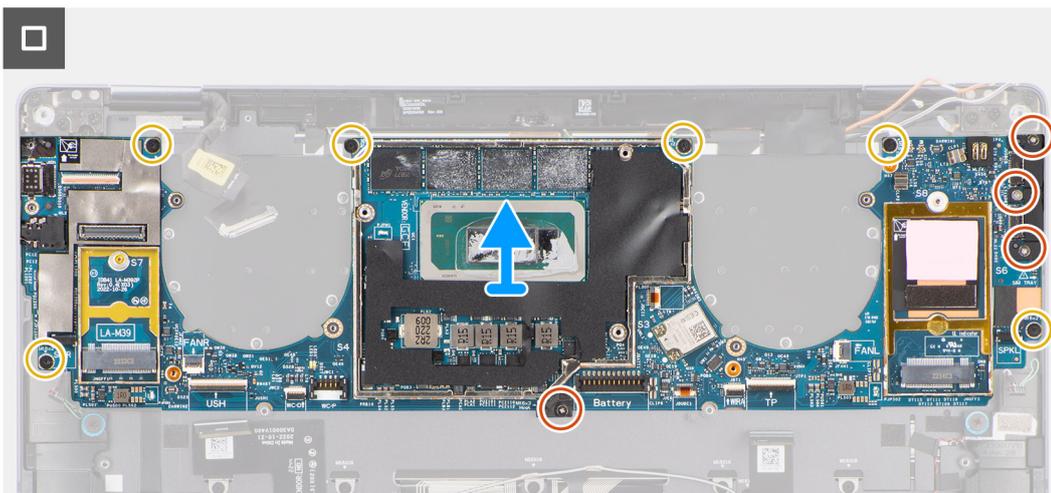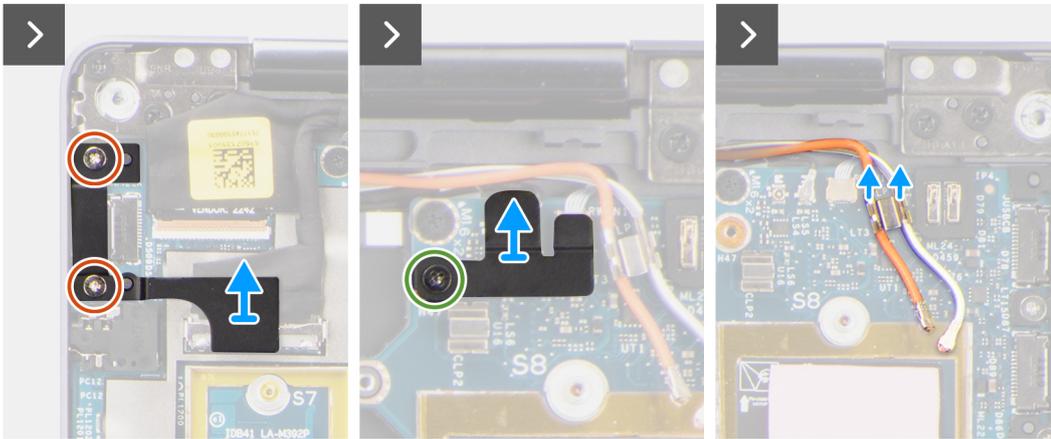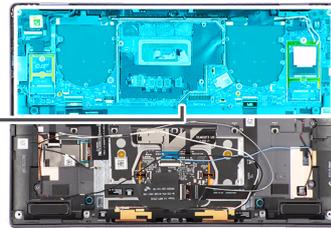
Steps

1. Peel back the left and right mylar stickers on the system board.
2. Remove the two (M1.6x3) screws that secure the display cable/Type-C bracket in place.

3. Remove the display cable/Type-C bracket off the system board.

4. For systems shipped with WWAN, remove the (M1.6x2.3) screw that secures the WWAN Darwin cable bracket to the system board.

5. For systems shipped with WWAN, lift the WWAN Darwin cable bracket off the system board.

6. Disconnect the display cable, camera cable, Proximity sensor cable, WWAN Darwin antenna cables (for systems shipped with WWAN), left and right speaker cable, touchpad FPC, power button FPC (for systems shipped without a fingerprint reader) or USH I/O board FPC (for models shipped with a fingerprint reader) cable from the connectors on the system board.

   (i) **NOTE:** The connector for the display cable features a latch that locks it in place on the system board which technicians must flip open in order to disconnect the display cable from the system board. After flipping open the latch, technicians must grasp the left and right sides of the cable's connector head and disconnect the display cable from the system board in a direct upward motion to prevent damage to the connector's pins.

   ⚠ **CAUTION: Do not attempt to disconnect the display cable from the system board without flipping open the latch first.**

7. For systems shipped with WWAN, unroute the WWAN antenna cables from their routing guides on the system board.

8. Remove the three (M1.6x3) screws that secure the USB Type-C bracket to the system board.

9. Remove the USB Type-C bracket off the system board.

10. Remove the single (M1.6x3) screw and six (M1.6x2) screws that secure the system board to the palm-rest assembly.

There are seven screws in two sizes securing the system board in
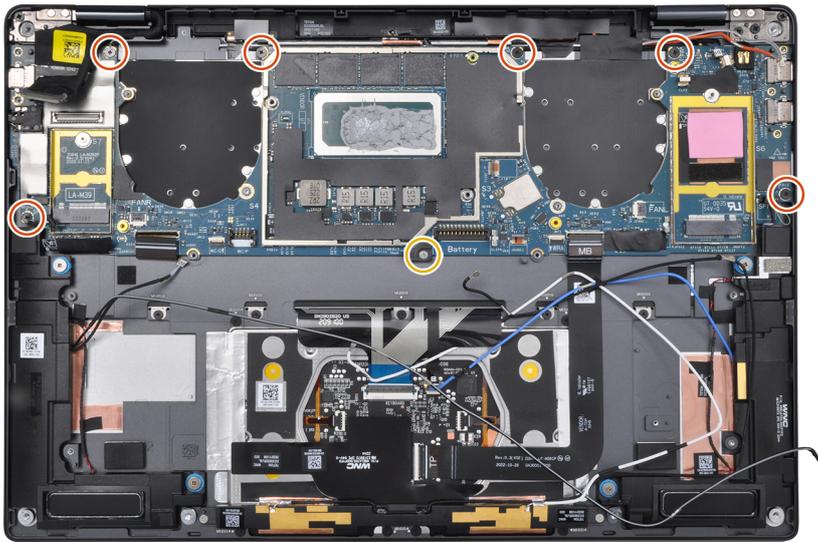

place.

11. Remove the system board off the chassis.

⚠ **CAUTION: Do not hold and bend the system board from its "necks" as it may damage the system**
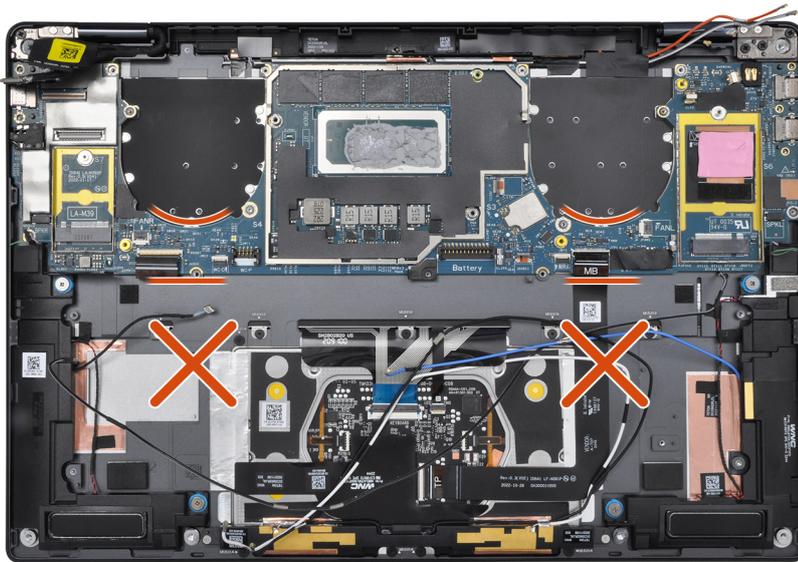
board.

12. Peel back the display absorber and WWAN thermal pad (for systems shipped with WWAN) from the system board.

ⓘ **NOTE:** All of the above mentioned absorbers/stickers on the system board are re-usable and must be immediately relocated to the replacement system board.

ⓘ **NOTE:** The following items MUST be transferred to the replacement system board.

a. Display absorber (for models shipped with WWAN antennas) or display mylar (for models shipped without WWAN antennas)

b. WWAN card thermal pad sticker (for models shipped with WWAN antennas) or VPU card thermal pad sticker (for models shipped with a VPU card)

Installing the system board

Prerequisites

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

About this task

The following image indicates the location of the system board and provides a visual representation of the installation procedure.
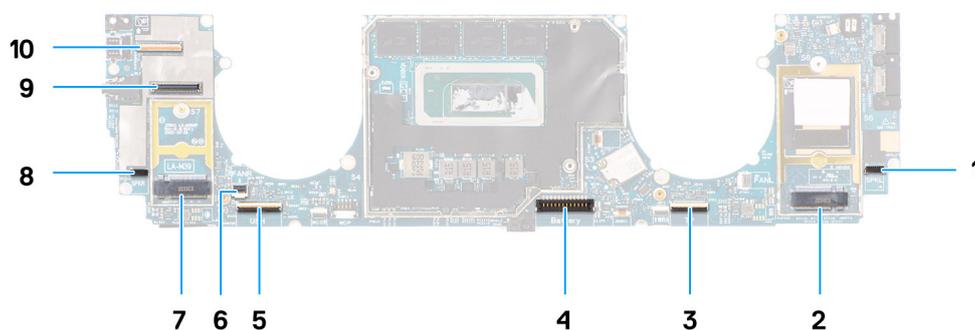
1. Right speaker cable connector
2. WWAN card connector
3. Touchpad cable connector
4. Battery cable connector
5. USH I/O board cable connector

6. Left fan cable connector
7. M.2 2230 solid-state drive connector
8. Left speaker cable connector
9. Display cable connector
10. Camera cable connector
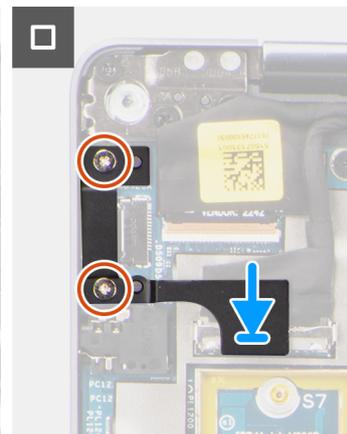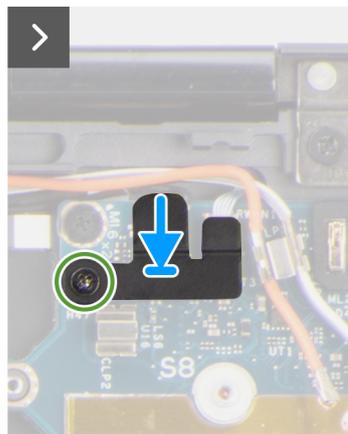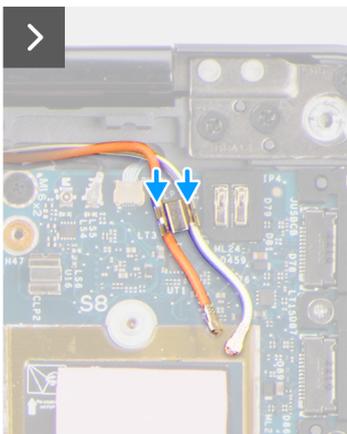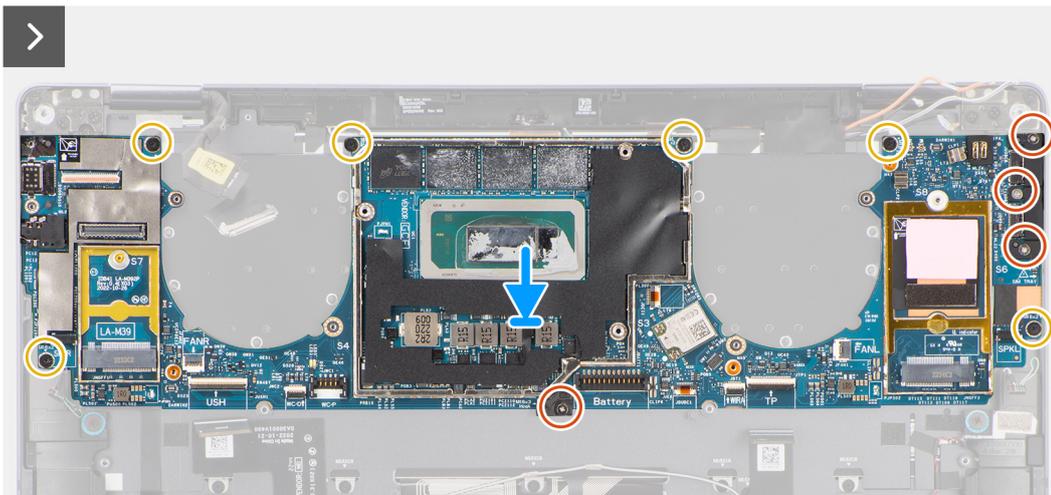
Steps

1. Adhere the display absorber and WWAN thermal pad (for systems shipped with WWAN) on the system board.

   ⓘ **NOTE:** All of the above mentioned absorbers/stickers on the system board are re-usable and must be immediately relocated to the replacement system board.

   ⓘ **NOTE:** The following items MUST be transferred to the replacement system board.

   a. Display absorber (for models shipped with WWAN antennas) or display mylar (for models shipped without WWAN antennas)

   b. WWAN card thermal pad sticker (for models shipped with WWAN antennas) or VPU card thermal pad sticker (for models shipped with a VPU card)

2. Align and place the system board on the palm-rest assembly.

3. ⚠ **CAUTION: Do not hold and bend the system board from its "necks" as it may damage the system**
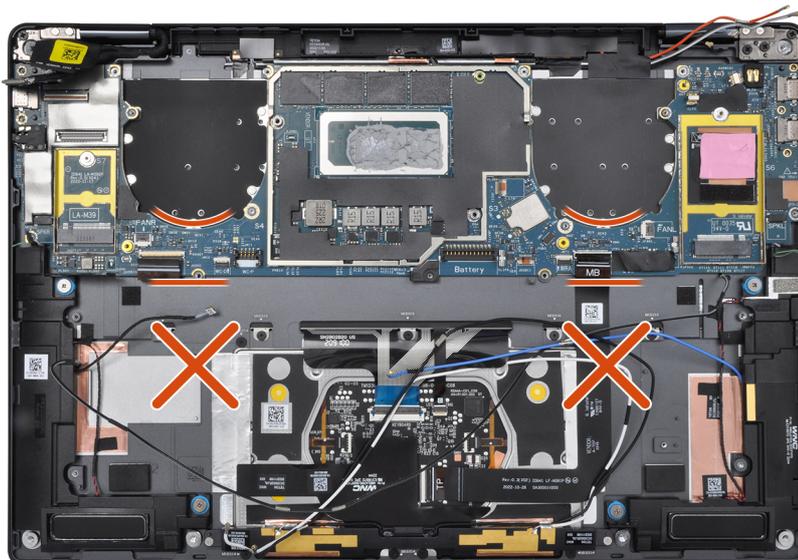
   board.

   Replace the single (M1.6x3) screw and six (M1.6x2) screws to secure the system board to the palm-rest assembly.

There are seven screws in two sizes securing the system board in place.
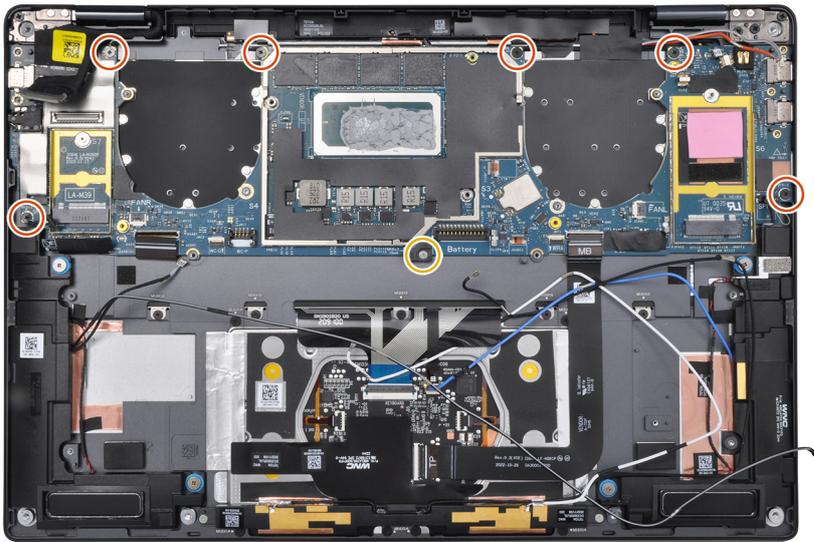
4. Align and place the USB Type-C bracket on the system board.
5. Replace the three (1.6x3) screws to secure the USB Type-C bracket to the system board.
6. For systems shipped with WWAN, route the WWAN antenna cables through their routing guides on the system board.
7. Connect the display cable, camera cable, Proximity sensor cable, WWAN Darwin antenna cables (for systems shipped with WWAN), left and right speaker cable, touchpad FPC, power button FPC (for systems shipped without a fingerprint reader) or USH I/O board FPC (for models shipped with a fingerprint reader) cable to the connectors on the system board.

   (i) **NOTE:** The connector for the display cable features a latch that locks it in place on the system board which technicians must flip open in order to connect the display cable to the system board..

8. Align and place the WWAN Darwin cable bracket on the system board.
9. Tighten the (M1.6x2.3) screw to secure the WWAN Darwin cable bracket to the system board.
10. Align and place the display cable/Type-C bracket on the system board.
11. Replace the two (M1.6x3) screws to secure the display cable/Type-C bracket in place.
12. Adhere the left and right mylar stickers on the system board.

Next steps
1. Install the battery.
2. Install the heat sink.
3. Install the left fan.
4. Install the right fan.
5. Install the WWAN card if applicable.
6. Install the solid-state drive.
7. Install the base cover.
8. Install the SIM card tray if applicable.
9. Follow the procedure in After working inside your computer.

Power button with fingerprint reader assembly

## Removing the power button with fingerprint reader assembly

Prerequisites

(i) **NOTE:** For system shipped with power button with fingerprint reader assembly only.

1. Follow the procedure in Before working inside your computer.

   ⓘ **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.

2. Remove the SIM card tray if applicable.
3. Remove the base cover.
4. Remove the solid-state drive.
5. Remove the WWAN card if applicable.
6. Remove the right fan.
7. Remove the left fan.
8. Remove the display assembly.
9. Remove the heat sink.
10. Remove the battery.
11. Remove the system board.

About this task

The following images indicate the location of the power-button and provide a visual representation of the removal procedure.
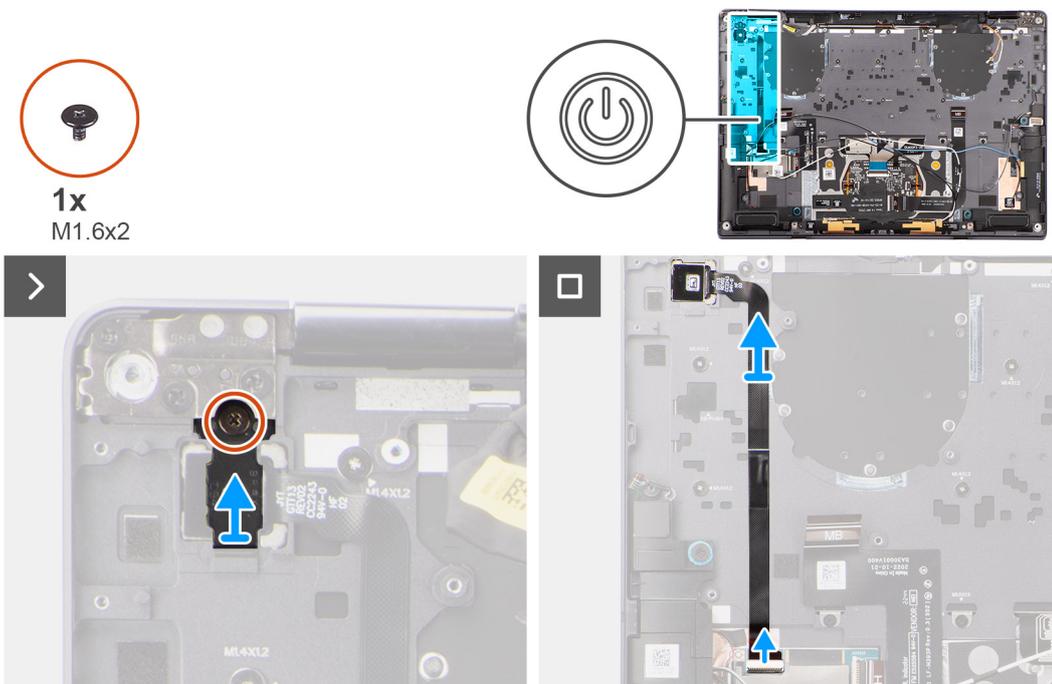
Steps

1. Remove the (M1.6x2) screw that secures the power button bracket in place.
2. Lift the power button bracket off the system.
3. For models shipped with a fingerprint reader, disconnect the power button FPC cable from the connector on the USH I/O board. For models shipped without a fingerprint reader, disconnect the power button FPC cable from the connector on the system board.

   ⓘ **NOTE:** Power button with fingerprint reader connects to the USH board and USH board FPC connects to the system board. Power button without fingerprint reader connects directly to system board as it shares the same connector as the USH FPC board connector on the system board.

4. Peel off the power button FPC from the palm-rest assembly and lift the power button off the system.

Installing the power button with fingerprint reader assembly

Prerequisites

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

About this task

The following images indicate the location of the power button and provides a visual representation of the installation procedure.
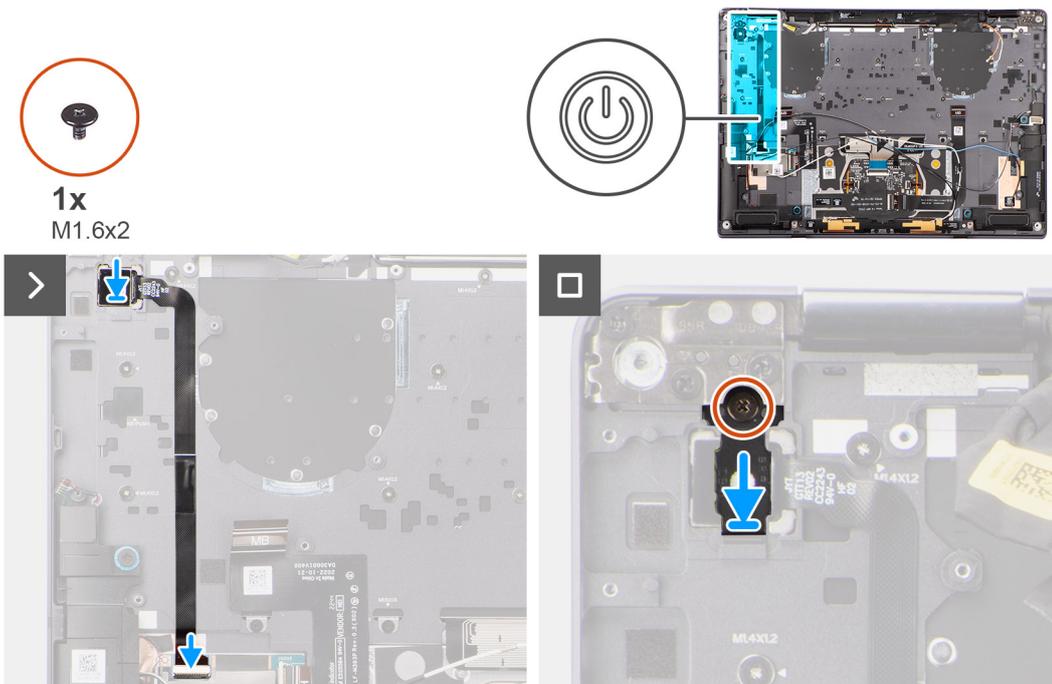
Steps

1. Align and place power button on the system. Adhere the power button FPC on the palm-rest assembly.
2. For models shipped with a fingerprint reader, connect the power button with fingerprint reader FPC cable to the connector on the USH daughter board. For models shipped without a fingerprint reader, connect the power button FPC cable to the connector on the system board

   ⓘ **NOTE:** Power button with fingerprint reader connects to the USH board and USH board FPC connects to the system board. Power button without fingerprint reader connects directly to system board as it shares the same connector as the USH FPC board connector on the system board.

3. Place the power button bracket on the power button assembly.
4. Replace the (M1.6x2) screw to secure the power button bracket to the palm-rest assembly.

Next steps

1. Install the system board.
2. Install the battery.
3. Install the heat sink.
4. Install the display assembly.
5. Install the left fan.
6. Install the right fan.
7. Install the WWAN card if applicable.
8. Install the solid-state drive.
9. Install the base cover.
10. Install the SIM card tray if applicable.

11. 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.
   (i) **NOTE:** Ensure that your computer is in Service Mode. For more information see, step 6 in Before working inside your computer.
2. Remove the SIM card tray if applicable.
3. Remove the base cover.
4. Remove the solid-state drive.
5. Remove the WWAN card if applicable.
6. Remove the right fan.
7. Remove the left fan.
8. Remove the display assembly.
9. Remove the heat sink.
10. Remove the battery.
11. Remove the system board.
12. Remove the right speaker.
13. Remove the left speaker.
14. Remove the power button.

About this task

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

Installing the palm-rest and keyboard assembly

Prerequisites

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

About this task

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

Steps

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

Next steps

1. Install the power button.
2. Install the left speaker.
3. Install the right speaker.
4. Install the system board.
5. Install the battery.
6. Install the heat sink.
7. Install the display assembly.
8. Install the left fan.
9. Install the right fan.
10. Install the WWAN card if applicable.
11. Install the solid-state drive.
12. Install the base cover.
13. Install the SIM card tray if applicable.
14. Follow the procedure in After working inside your computer.

Recommended tools

The procedures in this document may require the following tools:

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

Screw list

(i) 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.

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

(i) NOTE: Screw color may vary with the configuration ordered.

Table 1. Screw list

Component	Screw type	Quantity	Image
Base cover	Captive screws	6	
Solid-state drive	M1.2x1.5	1	
WWAN card	Captive screw	1	
Right fan	M1.6x3	2	
Left fan	M1.6x3	2	
Display cable/ Left Type-C bracket	M1.6x3	2	
Right Type-C bracket	M1.6x3	3	
Display assembly	M2.5x4	6	
Heat sink	Captive screws	3	
Battery	M2x3	6	
Right speaker	M1.6x1.8	2	
Left speaker	M1.6x1.8	2	

Component	Screw type	Quantity	Image
WLAN antenna module	M1.6x3	2	
Power button with fingerprint reader assembly	M1.6x2	1	
System board	M1.6x2	6	
	M1.6x3	1	

Major components of Latitude 9440 2-in-1

The following image shows the major components of Latitude 9440 2-in-1.
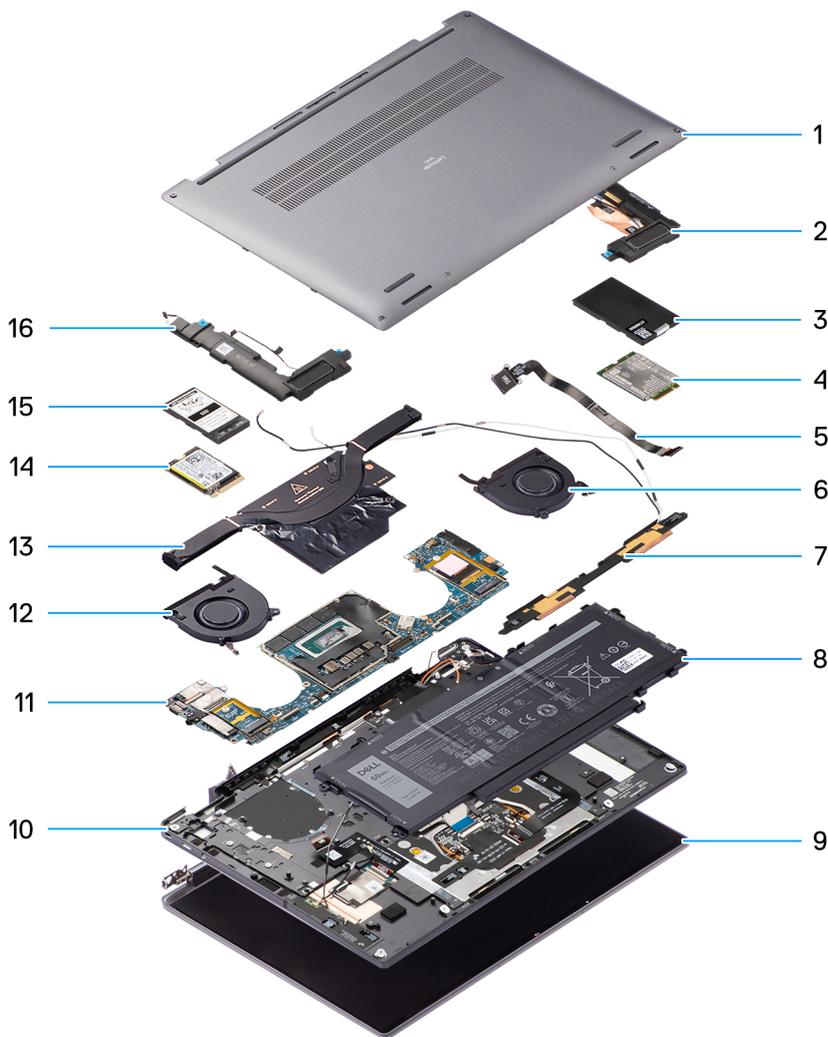
1. Base cover
3. WWAN card shielding cover
2. Right speaker
4. WWAN card

5. Power button
7. WLAN antenna module
9. Display assembly
11. System board
13. Heatsink
15. Solid-state drive shielding cover

6. Right fan
8. Battery
10. Palm-rest and keyboard assembly
12. Left fan
14. Solid-state drive
16. Left speaker

ⓘ **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.

3

Drivers and downloads

When troubleshooting, downloading or installing drivers it is recommended that you read the Dell Knowledge Base article, Drivers and Downloads FAQ 000123347.

BIOS 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

About this task

Turn on (or restart) your computer and press F2 immediately.

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 2. 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 F12 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

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 3. System setup options—System information menu

Overview	
Latitude 9440 2-in-1	
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.
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.
Ownership Tag	Displays the Ownership Tag of the computer.
Signed Firmware Update	Displays whether the Signed Firmware Update is enabled on your computer.
Battery Information	
Primary	Displays that battery is primary.
Battery Level	Displays the battery level of the computer.
Battery State	Displays the battery state of the computer.
Health	Displays the battery health of the computer.
AC Adapter	Displays whether the AC adapter is connected or not.
Battery Life Type	Displays the battery life type.
Processor Information	
Processor Type	Displays the processor type.
Maximum Clock Speed	Displays the maximum processor clock speed.
Minimum Clock Speed	Displays the minimum processor clock speed.
Current Clock Speed	Displays the current processor clock speed.
Core Count	Displays the number of cores on the processor.
Processor ID	Displays the processor identification code.
Processor L2 Cache	Displays the processor L2 Cache size.
Processor L3 Cache	Displays the processor L3 Cache size.
Microcode Version	Displays the microcode version.
Intel Hyper-Threading Capable	Displays whether the processor is Hyper-Threading (HT) capable.

Table 3. System setup options—System information menu (continued)

Overview	
64-Bit Technology	Displays whether 64-bit technology is used.
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.
Devices Information	
Panel Type	Displays the Panel Type of the computer.
Video Controller	Displays the video controller type of the computer.
Video Memory	Displays the video memory information of the computer.
Wi-Fi Device	Displays the wireless device information of the computer.
Native Resolution	Displays the native resolution of the computer.
Video BIOS Version	Displays the video BIOS version of the computer.
Audio Controller	Displays the audio controller information of the computer.
Bluetooth Device	Displays the Bluetooth device information of the computer.
Pass Through MAC Address	Displays the pass through MAC address of the computer.
Cellular Device	Displays the M.2 PCIe SSD information of the computer.

Table 4. System setup options—Boot Configuration menu

Boot Configuration	
Boot Sequence	
Boot mode	Displays the boot mode.
Boot Sequence	Displays the boot sequence.
Secure Boot	
Enable Secure Boot	Enable or disable the secure boot feature.
	By default, the option is disabled.
Enable Microsoft UEFI CA	By default, the is enabled.
Secure Boot Mode	Enable or disable to change the secure boot mode options.
	By default, the **Deployed Mode** is enabled.
Expert Key Management	
Enable Custom Mode	Enable or disable custom mode.
	By default, the **custom mode** option is not enabled.
Custom Mode Key Management	Select the custom values for expert key management.

Table 5. System setup options—Integrated Devices menu

Integrated Devices	
Date/Time	Displays the current date in MM/DD/YYYY format and current time in HH:MM:SS AM/PM format.
Camera	Enables or disable the camera.

Table 5. System setup options—Integrated Devices menu (continued)

Integrated Devices	
	By default, the **Enable Camera** option is selected
Audio	
Enable Audio	Enable or disable the integrated audio controller.
	By default, all the options are enabled.
USB/Thunderbolt Configuration	● Enable or disable booting from USB mass storage devices connected to external USB ports. By default, the **Enable External USB Ports** option is enabled. ● Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive. By default, the **Enable USB Boot Support** option is enabled.
Enable Thunderbolt Technology Support	Enable or disable the associated ports and adapters. By default, the **Enable Thunderbolt Technology Support** option is selected.
Enable Thunderbolt Boot Support	Enable or disable the Thunderbolt adapter peripheral device and USB devices connected to the Thunderbolt adapter to be used during BIOS Pre-boot. By default, the **Enable Thunderbolt Boot Support** option is disabled.
Enable Thunderbolt (and PCIe behind TBT) pre-boot modules	Enable or disable the PCIe devices that are connected through a Thunderbolt adapter to execute the PCIe devices UEFI Option ROM (if present) during pre-boot. By default, the **Enable Thunderbolt (and PCIe behind TBT) pre-boot modules** option is disabled.
Disable USB4 PCIE Tunneling	Disable the USB4 PCIE Tunneling option. By default, the option is disabled.
Video/Power only on Type-C Ports	Enable or disable the Type-C port functionality to video or only power. By default, the **Video/Power only on Type-C Ports** option is disabled.
Type-C Dock Override	Enables to use connected Type-C Dell Dock to provide data stream with external USB ports disabled. When Type-C Dock override is enabled, the Video/Audio/Lan submenu is activated. By default, the **Type-C Dock Override** option is enabled.
Type-C Dock Audio	By default, the **Type-C Dock Audio** option is enabled.
Type-C Dock Lan	By default, the **Type-C Dock Lan** option is enabled.
Video	Enable or disable the usage of video on Dell Dock external ports. By default, the **Video** option is disabled.
Audio	Enable or disable the usage of audio on Dell Dock external ports. By default, the **Audio** option is enabled.
Lan	Enable or disable the usage of LAN on Dell Dock external ports. By default, the **Lan** option is enabled.
Miscellaneous Devices	Enable or disable Fingerprint Reader device. For systems shipped with a fingerprint reader, by default, the **Enable Fingerprint Reader Device** option is enabled.

Table 6. System setup options—Storage menu

Storage	
SATA/NVMe Operation	
SATA/NVMe Operation	Set the operating mode of the integrated storage device controller. By default, the RAID On option is enabled.
Storage Interface	
Port Enablement	By default, the **M.2 PCIe SSD-0** option is enabled.
SMART Reporting	
Enable SMART Reporting	Enable or disable Self-Monitoring, Analysis, and Reporting Technology (SMART) during computer startup.
	By default, the **Enable SMART Reporting** option is not enabled.
Drive Information	

Table 7. System setup options—Display menu

Display	
Display Brightness	
Brightness on battery power	Enable to set screen brightness when the computer is running on battery power.
Brightness on AC power	Enable to set screen brightness when the computer is running on AC power.
Touchscreen	By default, the option is enabled.
Full Screen Logo	Enable or disable full screen logo.
	By default, the option is not enabled.

Table 8. System setup options—Connection menu

Connection	
Wireless Device Enable	
WWAN/GPS	Enable or disable the internal WWAN/GPS device
	By default, the option enabled.
WLAN	Enable or disable the internal WLAN device
	By default, the option enabled.
Bluetooth	Enable or disable the internal Bluetooth device
	By default, the option enabled.
Enable UEFI Network Stack	Enable or disable UEFI Network Stack and controls the on-board LAN Controller.
	By default, the **Enable UEFI Network Stack** option are enabled.
Wireless Radio Control	
Control WLAN radio	Sense the connection of the computer to a wired network and subsequently disable the selected wireless radios (WLAN).
	By default, the option is disabled.
Control WWAN radio	Sense the connection of the computer to a wired network and subsequently disable the selected wireless radios (WWAN).
	By default, the option is disabled.
Dynamic Wireless Transmit Power	By default, the option is enabled.

Table 8. System setup options—Connection menu (continued)

Connection	
HTTPs Boot Feature	
HTTPs Boot	Enable or disable the HTTPs Boot feature.
	By default, the **HTTPs Boot** option is enabled.
HTTPs Boot Mode	With Auto Mode, the HTTPs Boot extracts Boot URL from the DHCP. With Manual Mode, the HTTPs Boot reads Boot URL from the user-provided data.
	By default, the **Auto Mode** option is enabled.

Table 9. System setup options—Power menu

Power	
Battery configuration	Enables the computer to run on battery during peak power usage hours. Use the table **Custom Charge Start** and **Custom Charge Stop**, to prevent AC power usage between certain times of each day.
	By default, the **Adaptive** option is enabled.
Advanced Configuration	
Enable Advanced Battery Charge Configuration	Enable or disable the advanced battery charge configuration.
	By default, the **Enable Advanced Battery Charge Configuration** option is disabled.
Peak Shift	Enables the computer to run on battery during peak power usage hours.
	By default, the **Enable Peak Shift** option is disabled.
Enable Peak Shift	
USB PowerShare	
Enable USB PowerShare	Enable or disable the USB PowerShare.
	By default, the **Enable USB PowerShare** option is disabled
Thermal Management	Enables to cool the fan and processor heat management to adjust the computer performance, noise, and temperature.
	By default, the **Optimized** option is enabled.
USB Wake Support	
Wake on Dell USB-C Dock	When enabled, connecting a Dell USB-C Dock will wake the computer from standby.
	By default, the **Wake on Dell USB-C Dock** option is enabled.
Block Sleep	Enables to block entering sleep (S3) mode in the operating system.
	By default, the **Block Sleep** option is disabled.
Lid Switch	Enable or disable the lid switch.
	By default, the **Lid Switch** option is enabled.
Power On Lid Open	By default, the **Power On Lid Open** option is enabled.
Intel Speed Shift Technology	Enable or disable the Intel speed shift technology support.
	By default, the **Intel Speed Shift Technology** option is enabled.

Table 10. System setup options—Security menu

Security	
TPM 2.0 Security	

Table 10. System setup options—Security menu (continued)

Security	
TPM 2.0 Security On	Enable or disable TPM 2.0 security options.
	By default, the **TPM 2.0 Security On** option is enabled.
Attestation Enable	Enables to control whether the Trusted Platform Module (TPM) Endorsement Hierarchy is available to the operating system.
	By default, the **Attestation Enable** option is enabled.
Key Storage Enable	Enables to control whether the Trusted Platform Module (TPM) Storage Hierarchy is available to the operating system.
	By default, the **Key Storage Enable** option is enabled.
SHA-256	BIOS and the TPM will use the SHA-256 hash algorithm to extend measurements into the TPM PCRs during BIOS boot.
	By default, the **SHA-256** option is enabled.
Clear	Enables to clear the TPM owner information and returns the TPM to the default state.
	By default, the **Clear** option is disabled.
PPI ByPass for Clear Commands	Controls the TPM Physical Presence Interface (PPI).
	By default, the **PPI ByPass for clear Commands** option is disabled.
Intel Total Memory Encryption	
Multi-key Total Memory Encryption (Up to 16 keys)	Enable or disable you to protect memory from physical attacks including freeze spray, probing DDR to read the cycles, and others.
	By default, the Multi-key Total Memory Encryption (Up to 16 keys) option is disabled.
Chassis intrusion	Controls the chassis intrusion feature.
	By default, the option is disabled.
Block Boot Until Cleared	By default, the option is disabled. For systems shipped with a fingerprint reader, the option On-Silent is enabled.
SMM Security Mitigation	Enable or disable SMM Security Mitigation.
	By default, the option is enabled.
Data Wipe on Next Boot	
Start Data Wipe	Enable or disable the data wipe on next boot.
	By default, the option is disabled.
Absolute	Enable or disable or permanently disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute software.
	By default, the option is enabled.
UEFI Boot Path Security	Controls whether or not the computer will prompt the user to enter the admin password (if set) when booting to a UEFI boot device from the F12 boot menu.
	By default, the **Always Except Internal HDD** option is enabled.
SafeShutter	By default, the **Dynamic Shutter** option is enabled.
Firmware Device Tamper Detection	By default, the **Silent** option is enabled.
Clear Firmware Tamper Detection	By default, the option is disabled.

Table 11. System setup options—Passwords menu

Passwords	
Admin Password	Set, change, or delete the administrator password.
System Password	Set, change, or delete the computer password.
NVMe SSD0	Set, change, or delete the NVMe SSD0 password.
Password Configuration	
Upper Case Letter	Reinforces password must have at least one upper case letter.
	By default, the option is disabled.
Lower Case Letter	Reinforces password must have at least one lower case letter.
	By default, the option is disabled.
Digit	Reinforces password must have at least one digit.
	By default, the option is disabled.
Special Character	Reinforces password must have at least one special character.
	By default, the option is disabled.
Minimum Characters	Set the minimum characters allowed for password.
Password Bypass	When enabled, this always prompts for computer and internal hard drive passwords when powered on from the off state.
	By default, the **Disabled** option is enabled.
Password Changes	
Enable Non-Admin Password Changes	Enable or disable to change computer and hard drive password without the need for admin password.
	By default, the option is enabled.
Admin Setup Lockout	
Enable Admin Setup Lockout	Enables administrators control over how their users can or cannot access BIOS setup.
	By default, the option is disabled.
Master Password Lockout	
Enable Master Password Lockout	When enabled, this will disable the master password support.
	By default, the option is disabled.
Allow Non-Admin PSID Revert	
Enable Allow Non-Admin PSID Revert	Controls access to the Physical Security ID (PSID) revert of NVMe hard-drives from the Dell Security Manager prompt.
	By default, the option is disabled.

Table 12. System setup options—Update, Recovery menu

Update, Recovery	
UEFI Capsule Firmware Updates	Enable or disable BIOS updates through UEFI capsule update packages.
	By default, the option is enabled.
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.
	By default, the option is enabled.
BIOS Downgrade	

Table 12. System setup options—Update, Recovery menu (continued)

Update, Recovery	
Allow BIOS Downgrade	Enable or disable the flashing of the computer firmware to previous revision is blocked.
	By default, the option is enabled.
SupportAssist OS Recovery	Enable or disable the boot flow for SupportAssist OS Recovery tool in the event of certain computer errors.
	By default, the option is enabled.
BISOConnect	Enable or disable cloud Service OS recovery if the main operating system fails to boot with the number of failures equal to or greater than the value specified by the Auto OS Recovery Threshold setup option and local Service OS does not boot or is not installed.
	By default, the option is enabled.
Dell Auto OS Recovery Threshold	Controls the automatic boot flow for SupportAssist System Resolution Console and for Dell OS Recovery Tool.
	By default, the threshold value is set to 2.

Table 13. System setup options—System Management menu

System Management	
Service Tag	Display the Service Tag of the computer.
Asset Tag	Create a computer Asset Tag.
AC Behavior	
Wake on AC	Enable or disable the wake on AC option.
	By default, the option is disabled.
Wake on LAN	
Wake on LAN	Enable or disable the computer to power on by special LAN signals when it receives a wakeup signal from the WLAN.
	By default, the **Disabled** option is selected.
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.
	By default, the option is disabled.
Intel AMT Capability	By default, the **Restrict Preboot Access** option is selected.
Diagnostics	
OS Agent Requests	By default, the option is enabled.
Power-on-Self-Test Automatic Recovery	By default, the option is enabled.

Table 14. System setup options—Keyboard menu

Keyboard	
Fn Lock Options	By default, the Fn lock option is enabled.
Lock Mode	By default, the **Lock Mode Secondary** option is enabled.
Keyboard Illumination	Enables to change the keyboard illumination settings.
	By default, the **Dim** option is enabled.

Table 14. System setup options—Keyboard menu (continued)

Keyboard	
Keyboard Backlight Timeout on AC	Set the timeout value for the keyboard backlight when an AC adapter is connected to the computer.
	By default, the **10 seconds** option is enabled.
Keyboard Backlight Timeout on Battery	Set the timeout value for the keyboard backlight when the is running only on battery power.
	By default, the **10 seconds** option is enabled.
Device Configuration Hotkey Access	Manages whether you can access device configuration screens through hotkeys during computer startup.
	By default, the option is enabled.

Table 15. System setup options—Pre-boot Behavior menu

Pre-boot Behavior	
Adapter Warnings	
Enable Adapter Warnings	Enable or disable the warning messages during boot when the adapters with less power capacity are detected.
	By default, the option is enabled.
Warning and Errors	Enable or disable the action to be done when a warning or error is encountered.
	By default, the **Prompt on Warnings and Errors** option is enabled.
USB-C Warnings	
Enable Dock Warning Messages	Enable or disable Dock Warning Messages.
	By default, the option is enabled.
Fastboot	Enable to set the speed of the boot process.
	By default, the **Thorough/Minimal** option is enabled.
Extend BIOS POST Time	Set the BIOS POST time.
	By default, the **0 seconds** option is enabled.
MAC Address Pass-Through	Replaces the external NIC MAC address with the selected MAC address from the computer.
	By default, the **Passthrough MAC Address** option is enabled.
Sign of Life	
Early Logo Display	By default, the option is enabled.
Early Keyboard Backlight	By default, the option is enabled.
Collaboration Touchpad	By default, the option is enabled.

Table 16. System setup options—Virtualization menu

Virtualization	
Intel Virtualization Technology	
Enable Intel Virtualization Technology (VT)	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.
	By default, the option is enabled.
VT for Direct I/O	Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.

Table 16. System setup options—Virtualization menu (continued)

Virtualization	
	By default, the option is enabled.
Intel Trusted Execution Technology (TXT)	
Enable Intel Trusted Execution Technology (TXT)	Specifies whether a measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology.
	By default, the option is disabled.
DMA Protection	
Enable Pre-Boot DMA Support	By default, the option is enabled.
Enable OS Kernel DMA Support	By default, the option is enabled.

Table 17. System setup options—Performance menu

Performance	
Multi Core Support	
Active Cores	Enables to change the number of CPU cores available to the operating system.
	By default, the **All Cores** options is enabled.
Intel SpeedStep	
Enable Intel SpeedStep Technology	Enables the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production.
	By default, the option is enabled.
C-States Control	
Enable C-State Control	Enable or disable additional processor sleep states.
	By default, the option is enabled.
Intel TurbocBoost Technology	
Enable Intel Turbo Boost Technology	Enable or disable Intel TurboBoost mode of the processor.
	By default, the option is enabled.
Intel Hyper-Threading Technology	
Enable Intel Hyper-Threading Technology	Enable or disable Hyper-Threading in the processor.
	By default, the option is enabled.
Dynamic Tuning:Machine Learning	
Enable Dynamic Tuning:Machine Learning	Enables the operating system capability to enhance dynamic power tuning capabilities based on detected workloads.
	By default, the option is disabled.

Table 18. System setup options—System Logs menu

System Logs	
BIOS Event Log	
Clear Bios Event Log	Display BIOS events.
	By default, the **Keep Log** option is enabled.
Thermal Event Log	

Table 18. System setup options—System Logs menu (continued)

System Logs	
Clear Thermal Event Log	Display Thermal events.
	By default, the **Keep Log** option is enabled.
Power Event Log	
Clear Power Event Log	Display power events.
	By default, the **Keep Log** option is enabled.

Updating the BIOS

Updating the BIOS in Windows

About this task

> ⚠️ **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, search in the Knowledge Base Resource at www.dell.com/support.**

Steps

1. Go to www.dell.com/support.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.
   > ℹ️ **NOTE:** If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.
3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
   For more information, search in the Knowledge Base Resource at www.dell.com/support.

Updating the BIOS using the USB drive in Windows

About this task

> ⚠️ **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, search in the Knowledge Base Resource at www.dell.com/support.**

Steps

1. Follow the procedure from step 1 to step 6 in Updating the BIOS in Windows to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, search in the Knowledge Base Resource 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** .

6. Select the USB drive from the **One Time Boot Menu**.

7. Type the BIOS setup program filename and press **Enter**.
   The **BIOS Update Utility** appears.

8. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the F12 One-Time boot menu

Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 One-Time boot menu.

About this task

⚠ **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, search in the Knowledge Base Resource at www.dell.com/support.**

BIOS Update

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

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

ⓘ **NOTE:** Only computers 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 need the following:

● USB drive 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 drive
● AC power adapter that is connected to the computer
● Functional computer battery to flash the BIOS

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

⚠ **CAUTION: Do not turn off the computer during the BIOS update process. The computer may not boot if you turn off your computer.**

Steps

1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.

2. Turn on the computer and press F12 to access the One-Time Boot Menu, select BIOS Update using the mouse or arrow keys then press Enter.
   The flash BIOS menu is displayed.

3. Click **Flash from file**.

4. Select external USB device.

5. Select the file and double-click the flash target file, and then click **Submit**.

6. Click **Update BIOS**. The computer restarts to flash the BIOS.

7. The computer will restart after the BIOS update is completed.

System and setup password

Table 19. System and setup password

Password type	Description
System password	Password that you must enter to log in 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 that is 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 F12 immediately after a power-on or reboot.

Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - At least one special character: ! " # $ % & ' ( ) * + , - . / : ; < = > ? @ [\ ] ^ _ ` { | }
   - Numbers 0 through 9.
   - Upper case letters from A to Z.
   - Lower case letters from a to z.
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and save the changes as prompted by the pop-up message.
5. Press Y to save the changes.
   The computer restarts.

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/or 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 F12 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**, update, or delete the existing system password, and press Enter or Tab.
4. Select **Setup Password**, update, or delete the existing setup password, and press Enter or Tab.

   > (i) **NOTE:** If you change the System and/or Setup password, reenter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

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

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.

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

Clearing Chassis Intrusion Alert

The system features a chassis intrusion switch which is able to detect any time the base cover has been removed from the system. Alerts to notify you of any intrusions can be enabled via the Chassis Intrusion field in the Security sub-menu of the BIOS setup menu. When enabled, the Block Boot Until Cleared field allows you to choose whether to prevent normal boot up of the system until the intrusion alert is cleared.
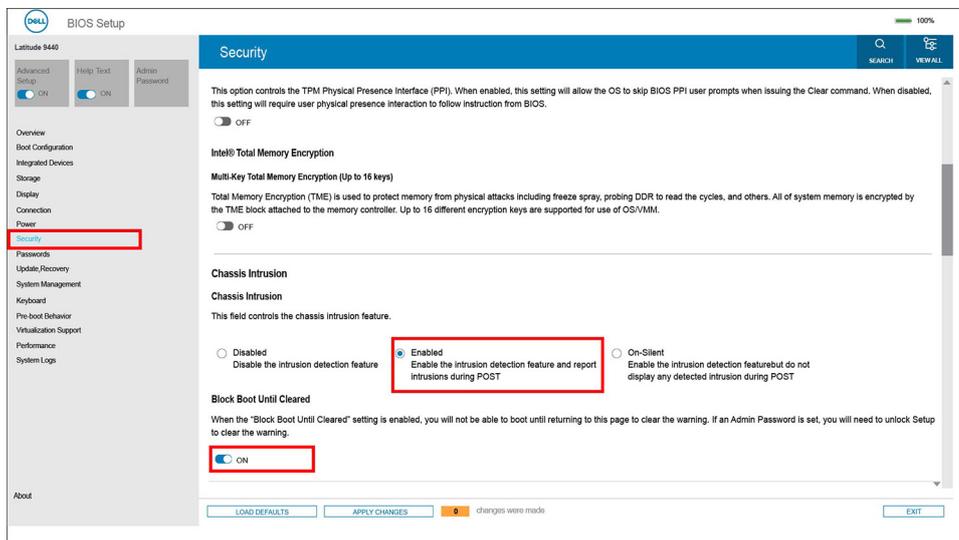
If Block Boot Until Cleared is set to ON, the user must select BIOS-Setup and clear the intrusion alert in order to boot up normally.
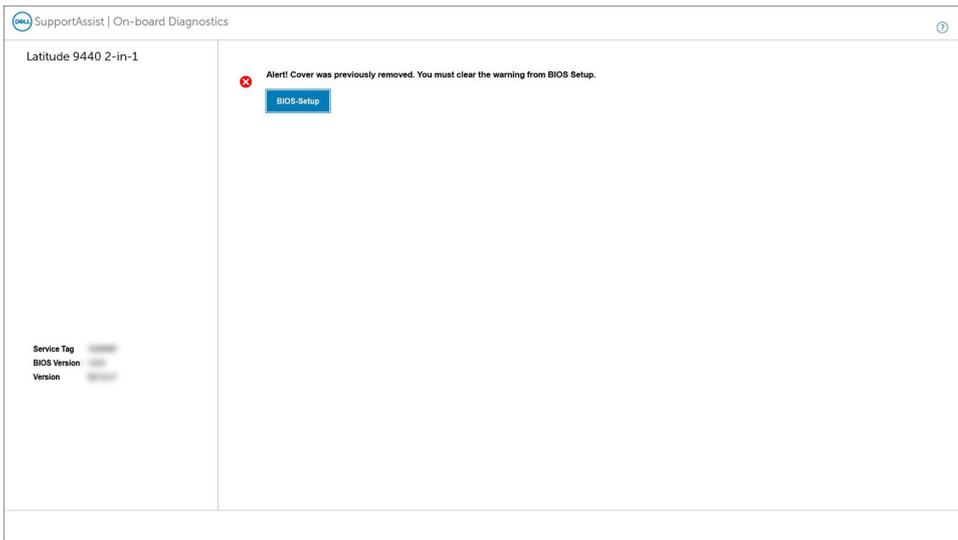
If Block Boot Until Cleared is set to OFF, select Continue to boot up normally or BIOSSetup to clear the alert.
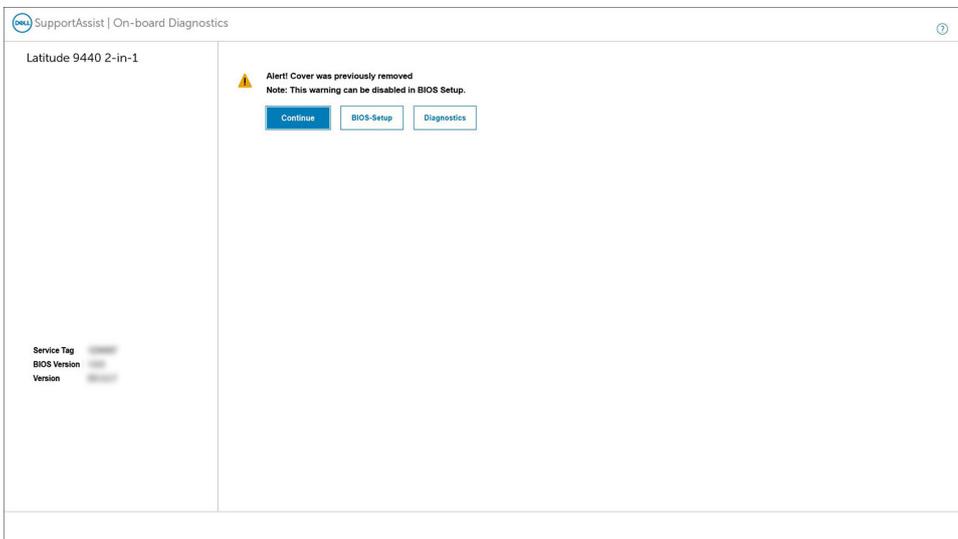
(i) **NOTE:** If Continue is selected, the user will continue to see the alert each time the system is powered on until the alert is cleared.

To clear the alert, select ON in the Clear Intrusion Warning field in the Security sub-menu of the BIOS setup menu.
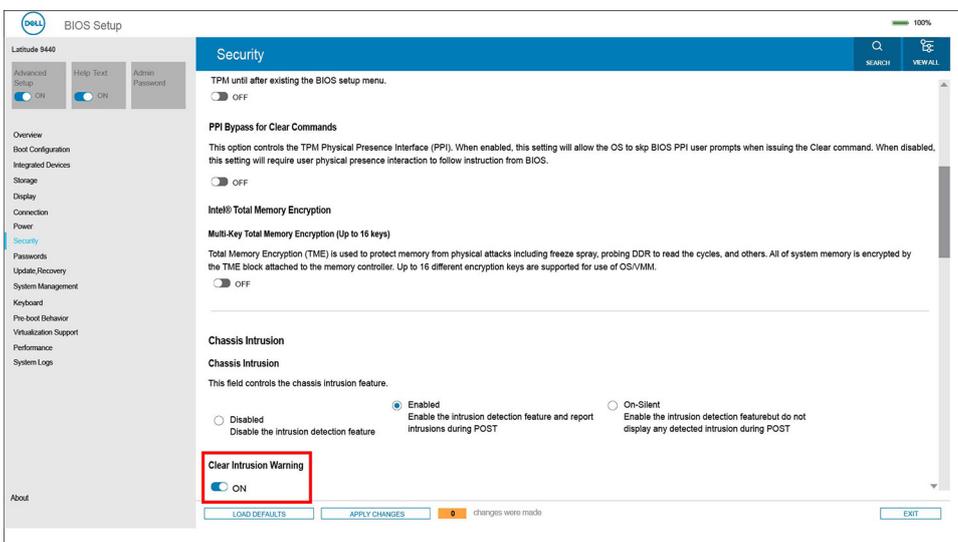
BIOS Reset

About this task

Latitude 9440 2-in-1 has a CMOS-less design. As result, the systems main Battery will cover CMOS-functionality.

If the main battery runs out of power or is removed from system, **Restore Settings** allows users to select one of the following options:

- BIOS Defaults
- Last Known Good
- Custom User Settings
- Factory Defaults

Troubleshooting

Handling swollen rechargeable Li-ion batteries

Like most laptops, Dell laptops use Lithium-ion batteries. One type of Lithium-ion battery is the rechargeable Li-ion battery. Rechargeable Li-ion batteries have increased in popularity in recent years and have become standard in the electronics industry due to customer preferences for a slim form factor (especially with newer ultra-thin laptops) and long battery life. Inherent to rechargeable Li-ion battery technology is the potential for swelling of the battery cells.

Swollen battery may impact the performance of the laptop. To prevent possible further damage to the device enclosure or internal components leading to malfunction, discontinue the use of the laptop and discharge it by disconnecting the AC adapter and letting the battery drain.

Swollen batteries should not be used and should be replaced and disposed of properly. We recommend contacting Dell product support for options to replace a swollen battery under the terms of the applicable warranty or service contract, including options for replacement by a Dell authorized service technician.

The guidelines for handling and replacing rechargeable Li-ion batteries are as follows:

- Exercise caution when handling rechargeable Li-ion batteries.
- Discharge the battery before removing it from the system. To discharge the battery, unplug the AC adapter from the system and operate the system only on battery power. When the system will no longer power on when the power button is pressed, the battery is fully discharged.
- 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 type to pry on or against the battery.
- If a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a battery can be dangerous.
- Do not attempt to reassemble a damaged or swollen battery into a laptop.
- Swollen batteries that are covered under warranty should be returned to Dell in an approved shipping container (provided by Dell)—this is to comply with transportation regulations. Swollen batteries that are not covered under warranty should be disposed of at an approved recycling center. Contact Dell product support at https://www.dell.com/support for assistance and further instructions.
- Using a non-Dell or incompatible battery may increase the risk of fire or explosion. Replace the battery only with a compatible battery purchased from Dell that is designed to work with your Dell computer. Do not use a battery from other computers with your computer. Always purchase genuine batteries from https://www.dell.com or otherwise directly from Dell.

Rechargeable Li-ion batteries can swell for various reasons such as age, number of charge cycles, or exposure to high heat. For more information on how to improve the performance and lifespan of the laptop battery and to minimize the possibility of occurrence of the issue, search Dell Laptop Battery in the Knowledge Base Resource at www.dell.com/support.

Locate the Service Tag or Express Service Code of your Dell computer

Your Dell computer is uniquely identified by a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, we recommend entering the Service Tag or Express Service Code at www.dell.com/support.

For more information on how to find the Service Tag for your computer, see Locate the Service Tag on your computer.

Dell SupportAssist Pre-boot System Performance Check diagnostics

About this task

SupportAssist diagnostics (also known as system diagnostics) performs a complete check of your hardware. The Dell SupportAssist Pre-boot System Performance Check diagnostics 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 https://www.dell.com/support/kbdoc/000180971.

Running the SupportAssist Pre-Boot System Performance Check

Steps

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.

Built-in self-test (BIST)

M-BIST

M-BIST (Built In Self-Test) is the system board's built-in self-test diagnostics tool that improves the diagnostics accuracy of system board embedded controller (EC) failures.

ⓘ **NOTE:** M-BIST can be manually initiated before POST (Power On Self Test).

How to run M-BIST

ⓘ **NOTE:** M-BIST must be initiated on the system from a power-off state either connected to AC power or with battery only.

1. Press and hold both the **M** key on the keyboard and the **power button** to initiate M-BIST.
2. With both the **M** key and the **power button** held down, the battery indicator LED may exhibit two states:
   a. OFF: No fault detected with the system board
   b. AMBER: Indicates a problem with the system board
3. If there is a failure with the system board, the battery status LED will flash one of the following error codes for 30 seconds:

Table 20. LED error codes

Blinking Pattern		Possible Problem
Amber	**White**	
2	1	CPU Failure
2	8	LCD Power Rail Failure
1	1	TPM Detection Failure
2	4	Memory/RAM failure

4. If there is no failure with the system board, the LCD will cycle through the solid color screens described in the LCD-BIST section for 30 seconds and then power off.

LCD Power rail test (L-BIST)

L-BIST is an enhancement to the single LED error code diagnostics and is automatically initiated during POST. L-BIST will check the LCD power rail. If there is no power being supplied to the LCD (that is if the L-BIST circuit fails), the battery status LED will flash either an error code [2,8] or an error code [2,7].

ⓘ **NOTE:** If L-BIST fails, LCD-BIST cannot function as no power will be supplied to the LCD.

How to invoke L-BIST Test:

1. Press the power button to start the system.
2. If the system does not start up normally, look at the battery status LED:
   - If the battery status LED flashes an error code [2,7], the display cable may not be connected properly.
   - If the battery status LED flashes an error code [2,8], there is a failure on the LCD power rail of the system board, hence there is no power supplied to the LCD.
3. For cases, when a [2,7] error code is shown, check to see if the display cable is properly connected.
4. For cases when a [2,8] error code is shown, replace the system board.

LCD Built-in Self Test (BIST)

Dell laptops have a built-in diagnostic tool that helps you determine if the screen abnormality you are experiencing is an inherent problem with the LCD (screen) of the Dell laptop or with the video card (GPU) and PC settings.

When you notice screen abnormalities like flickering, distortion, clarity issues, fuzzy or blurry image, horizontal or vertical lines, color fade etc., it is always a good practice to isolate the LCD (screen) by running the Built-In Self Test (BIST).

How to invoke LCD BIST Test

1. Power off the Dell laptop.
2. Disconnect any peripherals that are connected to the laptop. Connect only the AC adapter (charger) to the laptop.
3. Ensure that the LCD (screen) is clean (no dust particles on the surface of the screen).
4. Press and hold **D** key and **Power on** the laptop to enter LCD built-in self test (BIST) mode. Continue to hold the D key, until the system boots up.
5. The screen will display solid colors and change colors on the entire screen to white, black, red, green, and blue twice.
6. Then it will display the colors white, black and red.
7. Carefully inspect the screen for abnormalities (any lines, fuzzy color or distortion on the screen).
8. At the end of the last solid color (red), the system will shut down.

ⓘ **NOTE:** Dell SupportAssist Pre-boot diagnostics upon launch, initiates an LCD BIST first, expecting a user intervention confirm functionality of the LCD.

System-diagnostic lights

This section lists the system-diagnostic lights of your Latitude 9440 2-in-1.

Table 21. System-diagnostic lights

Blinking pattern		Problem description
Amber	**White**	**Problem description**
1	1	TPM detection failure
1	2	Unrecoverable SPI Flash Failure
1	3	Short in hinge cable tripped OCP 1
1	4	Short in hinge cable tripped OCP 2
1	5	EC unable to program i-Fuse
1	6	Generic catch-all for ungraceful EC code flow errors
1	7	Non-RPMC Flash on Boot Guard fused system
2	1	CPU failure
2	2	System board covers BIOS corruption or ROM error
2	3	No memory/RAM detected
2	4	Memory/RAM failure
2	5	Invalid memory installed
2	6	System board/Chipset Error
2	7	LCD failure (SBIOS message)
2	8	LCD failure (EC detection of power rail failure)
3	1	CMOS battery failure
3	2	PCI or Video card/chip failure
3	3	BIOS Recovery image not found
3	4	BIOS Recovery image found but invalid
3	5	Power rail failure
3	6	Flash corruption detected by SBIOS.
3	7	Timeout waiting on ME to reply to HECI message.
4	1	Memory DIMM power rail failure
4	2	CPU power cable connection issue

> **NOTE:** Blinking 3-3-3 LEDs on Lock LED (Caps-Lock or Nums-Lock), Power button LED (without Fingerprint reader), and Diagnostic LED indicates failure to provide input during LCD panel test on Dell SupportAssist Pre-boot System Performance Check diagnostics.

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 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/serviceabilitytools. Click **SupportAssist** and then, click **SupportAssist OS Recovery**.

Backup media and recovery options

It is recommended to create a recovery drive to troubleshoot and fix problems that may occur with Windows. Dell proposes multiple options for recovering Windows operating system on your Dell PC. For more information. see Dell Windows Backup Media and Recovery Options.

Wi-Fi power cycle

About this task

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:

(i) **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.

Drain residual flea power (perform hard reset)

About this task

Flea power is the residual static electricity that remains in the computer even after it has been powered off and the battery is removed.

For your safety, and to protect the sensitive electronic components in your computer, you are requested to drain residual flea power before removing or replacing any components in your computer.

Draining residual flea power, also known as a performing a "hard reset", is also a common troubleshooting step if your computer does not power on or boot into the operating system.

To drain residual flea power (perform a hard reset)

Steps

1. Turn off your computer.
2. Disconnect the power adapter from your computer.

3. Remove the base cover.
4. Remove the battery.
5. Press and hold the power button for 20 seconds to drain the flea power.
6. Install the battery.
7. Install the base cover.
8. Connect the power adapter to your computer.
9. Turn on your computer.

> ⓘ **NOTE:** For more information about performing a hard reset, search in the Knowledge Base Resource at www.dell.com/support.

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 22. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell app	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals and documents.	Your Dell computer is uniquely identified by a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at www.dell.com/support. For more information on how to find the Service Tag for your computer, see Locate the Service Tag on your computer.
Dell knowledge base articles for a variety of computer concerns	1. Go to www.dell.com/support. 2. On the menu bar at the top of the Support page, select **Support** > **Knowledge Base**. 3. In the Search field on the Knowledge Base page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.

Contacting Dell

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

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

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