Inspiron 15 7000
Service Manual
Notes, cautions, and warnings

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

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

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.
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Before working inside your computer

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

Before you begin

1. Save and close all open files and exit all open applications.
2. Shut down your computer. Click Start → Power → Shut down.
   
   NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.

3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
5. Remove any media card and optical disc from your computer, if applicable.

Safety instructions

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

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

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

CAUTION: To avoid damaging the computer, ensure that the work surface is flat and clean.
⚠️ CAUTION: To avoid damaging the components and cards, handle them by their edges, and avoid touching pins and contacts.

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

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

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

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

## Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver
- Plastic scribe
### Screw list

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Secured to</th>
<th>Screw type</th>
<th>Quantity</th>
<th>Screw image</th>
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<tr>
<td>Base cover</td>
<td>Palm-rest assembly</td>
<td>M2.5x5</td>
<td>4</td>
<td></td>
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<tr>
<td>Battery</td>
<td>Palm-rest assembly</td>
<td>M2x3</td>
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<td>Battery</td>
<td>Keyboard shield</td>
<td>M2x3</td>
<td>1</td>
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<tr>
<td>Hard-drive assembly</td>
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<td>M2x3</td>
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<tr>
<td>Hard-drive assembly</td>
<td>Keyboard shield</td>
<td>M2x3</td>
<td>1</td>
<td></td>
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<td>Hard-drive bracket</td>
<td>Hard drive</td>
<td>M3x3</td>
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<td>Keyboard shield</td>
<td>M2x3</td>
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<td>I/O board</td>
<td>Palm-rest assembly</td>
<td>M2x3</td>
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<td>Fan</td>
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<td>Palm-rest assembly</td>
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<td>USB Type-C bracket</td>
<td>System board</td>
<td>M2x3</td>
<td>1</td>
<td></td>
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<tr>
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<td>Secured to</td>
<td>Screw type</td>
<td>Quantity</td>
<td>Screw image</td>
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<tr>
<td>USB Type-C bracket</td>
<td>Palm-rest assembly</td>
<td>M2x3</td>
<td>1</td>
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<tr>
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<td>Palm-rest assembly</td>
<td>M2x2</td>
<td>1</td>
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<tr>
<td>System board</td>
<td>Keyboard shield</td>
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After working inside your computer

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

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

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

Procedure

1. Close the display and turn the computer over.
2. Loosen the six captive screws that secure the base cover to the palm-rest assembly.
3. Remove the 4 screws (M2.5x5) that secure the base cover to the palm-rest assembly.
4 Using a plastic scribe, pry and release the tabs on the base cover from the slots on the palm-rest assembly.

5 Lift the base cover from the palm-rest assembly.

6 Disconnect the battery cable from the system board.

7 Press and hold the power button for 5 seconds to ground the system board.
Replacing the base cover

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Procedure

1. Connect the battery cable to the system board.
2. Align the tabs on the base cover with the slots on the palm-rest assembly and snap the base cover into place.
3. Replace the four screws (M2.5x5) that secure the base cover to the palm-rest assembly.
4. Tighten the six captive screws that secure the base cover to the palm-rest assembly.
Removing the battery

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Prerequisites

Remove the base cover.

Procedure

1. Using the pull tab, disconnect the battery cable from the system board.
2. Remove the four screws (M2x3) that secure the battery to the palm-rest assembly and keyboard shield.
3  Lift the battery off the palm-rest assembly.

4  Turn the computer over, open the display, and press and hold the power button for 15 seconds to ground the system board.
Replacing the battery

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**Procedure**

1. Align the screw holes on the battery with the screw holes on the palm-rest assembly and keyboard shield.
2. Replace the four screws (M2x3) that secure the battery to the palm-rest assembly and keyboard shield.
3. Connect the battery cable to the system board.

**Post-requisites**

Replace the [base cover](http://www.dell.com/base-cover).
Removing the hard drive

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

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

Prerequisites

Remove the base cover.

Procedure

1. Using the pull-tab, disconnect the hard-drive cable from the system board.
2. Remove the three screws (M2x3) that secure the hard-drive assembly to the palm-rest assembly and keyboard shield.
3 Lift the hard-drive assembly along with its cable off the palm-rest assembly.

4 Disconnect the interposer from the hard-drive assembly.

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

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

Procedure

1. Align the screw holes on the hard-drive bracket with the screw holes on the hard drive.
2. Replace the four screws (M3x3) that secure the hard-drive bracket to the hard drive.
3. Connect the interposer to the hard-drive assembly.
4. Align the screw holes on the hard-drive assembly with the screw holes on the palm-rest assembly and keyboard shield.
5. Replace the three screws (M2x3) that secure the hard-drive assembly to the palm-rest assembly and keyboard shield.
6. Connect the hard-drive cable to the connector on the system board.

Post-requisites

Replace the base cover.
Removing the solid-state drive/Intel Optane

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Prerequisites

Remove the base cover.

Procedure

1. Locate the solid-state drive/Intel Optane memory on the system board.
2 Remove the screw (M2x3) that secures the solid-state drive/Intel Optane memory to the keyboard shield.

3 Slide and remove the solid-state drive/Intel Optane memory from the solid-state drive/Intel Optane memory slot.
Replacing the solid-state drive/Intel Optane

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

Procedure

1. Align the notch on the solid-state drive/Intel Optane memory with the tab on the solid-state drive/Intel Optane memory slot.
2. Slide the solid-state drive/Intel Optane memory firmly into the solid-state drive/Intel Optane memory slot at an angle.
3. Press the other end of the solid-state drive/Intel Optane memory and replace the screw (M2x3) that secures the solid-state drive/Intel Optane memory to the keyboard shield.
Post-requisites

Replace the base cover.
Removing the memory modules

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Prerequisites

Remove the base cover.

Procedure

1. Locate the memory module on the system board.
2 Use your fingertips to carefully spread apart the securing-clips on each end of the memory-module slot until the memory module pops up.

3 Remove the memory module from the memory-module slot.
Replacing the memory modules

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Procedure

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

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

Post-requisites

Replace the base cover.
Removing the coin-cell battery

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

Prerequisites

Remove the base cover.

Procedure

1. Disconnect the coin-cell battery cable from the I/O board.
2 Peel the coin-cell battery off the palm-rest assembly.
Replacing the coin-cell battery

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Procedure

1. Connect the coin-cell battery cable to the I/O board.
2. Adhere the coin-cell battery to the palm-rest assembly.

Post-requisites

Replace the base cover.
Removing the heat sink

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

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

Prerequisites

Remove the base cover.

Procedure

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

   ✅ NOTE: The number of screws may vary depending on the configuration ordered.
2 Lift the heat sink off the system board.
Replacing the heat sink

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

ℹ️ NOTE: The original thermal grease can be reused if the original system board and heat sink are reinstalled together. If either the system board or the heat sink is replaced, use the thermal pad provided in the kit to ensure that thermal conductivity is achieved.

Procedure

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

⚠️ NOTE: The number of screws may vary depending on the configuration ordered.

Post-requisites

Replace the base cover.
Removing the fan

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Prerequisites

Remove the base cover.

Procedure

1. Peel the tape that secures the I/O-board cable to the system board.
2. Open the latch and disconnect the I/O-board cable from the system board.
3 Remove the I/O-board cable from the routing guides on the fan.

4 Disconnect the fan cable from the system board.

5 Remove the two screws (M2x3) that secure the fan to the keyboard shield.
6 Lift the fan off the palm-rest assembly.
Replacing the fan

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Procedure

1. Using the alignment posts, place the fan on the palm-rest assembly.
2. Align the screw holes on the fan with the screw holes on the keyboard shield.
3. Replace the two screws (M2x3) that secure the fan to the keyboard shield.
4. Connect the fan cable to the system board.
5. Route the I/O-board cables through the routing guides on the fan.
6. Slide the I/O-board cable into the connector on the system board and close the latch to secure the cable.
7. Adhere the tape that secures the I/O-board cable to the system board.

Post-requisites

Replace the base cover.
Removing the speakers

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Prerequisites

Remove the base cover.

Procedure

1. Disconnect the speaker cable from the system board.
2. Note the position of the rubber grommets before lifting the speakers.
3. Lift the right speaker by releasing the rubber grommets from the slots on the palm-rest assembly.
4. Lift the status-light board from the slot on the palm-rest assembly.
5. Note the cable routing and remove the speaker cable from the routing guides on the palm-rest assembly.
6 Lift the left speaker by releasing the rubber grommets from the slots on the palm-rest assembly.
Replacing the speakers

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Procedure

1. Using the alignment posts, align and place the left speaker on the palm-rest assembly.
2. Replace the rubber grommets if they are pushed up while replacing the left speaker.
3. Route the speaker cable through the routing guides on the palm-rest assembly.
4. Align and place the status-light board in the slot on the palm-rest assembly.
5. Using the alignment posts, align and place the right speaker on the palm-rest assembly.
6. Replace the rubber grommets if they are pushed up while replacing the right speaker.
7. Connect the speaker cable to the system board.

Post-requisites

Replace the base cover.
Removing the wireless card

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

Prerequisites

Remove the base cover.

Procedure

1. Locate the wireless card on the I/O board.
2 Remove the screw (M2x3) that secures the wireless-card bracket and wireless card to the I/O board.

3 Lift the wireless-card bracket off the wireless card.

4 Disconnect the antenna cables from the wireless card.

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

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

Procedure

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

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

2. Connect the antenna cables to the wireless card.

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

Table 2. Antenna-cable color scheme

<table>
<thead>
<tr>
<th>Connectors on the wireless card</th>
<th>Antenna-cable color</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main (white triangle)</td>
<td>White</td>
</tr>
<tr>
<td>Auxiliary (black triangle)</td>
<td>Black</td>
</tr>
</tbody>
</table>

3. Align the screw hole on the wireless-card bracket with the screw hole on the wireless card and the I/O board.
4 Replace the screw (M2x3) that secures the wireless-card bracket and wireless card to the I/O board.

Post-requisites

Replace the base cover.
Removing the power-adapter port

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

Prerequisites

Remove the base cover.

Procedure

1. Disconnect the power-adapter port cable from the system board.
2. Remove the screw (M2x3) that secures the power-adapter port to the palm-rest assembly.
3 Lift the power-adapter port along with its cable off the palm-rest assembly.
Replacing the power-adapter port

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

Procedure

1. Insert the power-adapter port into the slot on the palm-rest assembly.
2. Align the screw hole on the power-adapter port with the screw hole on the palm-rest assembly.
3. Replace the screw (M2x3) that secures the power-adapter port to the palm-rest assembly.
4. Connect the power-adapter port cable to the system board.

Post-requisites

Replace the base cover.
Removing the I/O board

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

Prerequisites

1. Remove the base cover.
2. Remove the wireless card.

Procedure

1. Peel off the tape that secures the I/O-board cable to the I/O board.
2. Open the latch and disconnect the I/O-board cable from the I/O board.
3 Disconnect the coin-cell battery cable from the I/O board.

4 Remove the two screws (M2x3) that secure the I/O board to the palm-rest assembly.
5 Lift the I/O board off the palm-rest assembly.
Replacing the I/O board

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

Procedure

1. Place the I/O board on the palm-rest assembly.
2. Align the screw holes on the I/O board with the screw holes on the palm-rest assembly.
3. Replace the two screws (M2x3) that secure the I/O board to the palm-rest assembly.
4. Connect the coin-cell battery cable to the I/O board.
5. Slide the I/O-board cable into the connector on the I/O board and close the latch to secure the cable.
6. Adhere the tape that secures the I/O-board cable to the I/O board.

Post-requisites

1. Replace the wireless card.
2. Replace the base cover.
Removing the display assembly

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

Prerequisites

1. Remove the base cover.
2. Remove the wireless card.

Procedure

1. Turn the computer over and open the display to 180-degree angle.
2. Place the computer on a flat surface with the display facing down.

⚠️ CAUTION: Place the computer on a soft and clean surface to avoid scratching the display.

3. Peel off the tapes that secure the display cable and touch-screen board cable (optional) to the system board.
4. Open the latches and disconnect the display cable and the touch-screen board cable (optional) from the system board.
5 Remove the antenna cables from the routing guides on the palm-rest assembly.

6 Remove the seven screws (M2.5x5) that secure the display assembly to the palm-rest assembly.
7 Lift the display assembly off the palm-rest assembly.
Replacing the display assembly

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Procedure

⚠️ CAUTION: Place the computer on a soft and clean surface to avoid scratching the display.

1. Place the display assembly on the palm-rest assembly.
2. Align the screw holes on the display hinges with the screw holes on the palm-rest assembly.
3. Replace the seven screws (M2.5x5) that secure the display assembly to the palm-rest assembly.
4. Route the antenna cables through the routing guides on the palm-rest assembly.
5. Slide the display cable and the touch-screen board cable (optional) into their respective connectors on the system board and close the latches to secure the cables.
6. Adhere the tapes that secure the display cable and the touch-screen board cable (optional) to their respective connectors on the system board.
7. Close the display and turn the computer over.

Post-requisites

1. Replace the wireless card.
2. Replace the base cover.
Removing the system board

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

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

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

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

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the solid-state drive/Intel Optane.
4. Remove the memory modules.
5. Remove the heat sink.
6. Remove the power-adapter port.

Procedure

1. Disconnect the fan cable from the system board.
2. Peel off the tapes that secure the display cable and touch-screen board cable (optional) to the system board.
3. Open the latches and disconnect the display cable and the touch-screen board cable (optional) from the system board.
4 Peel off the tape that secures the I/O-board cable to the system board.
5 Open the latch and disconnect the I/O-board cable from the system board.
6 Using the pull tab, disconnect the hard-drive cable from the system board.
7 Open the latch and disconnect the touchpad cable from the system board.
8 Disconnect the power-adapter port cable from the system board.
9 Remove the two screws (M2x3) that secure the USB Type-C port bracket to the system board and palm-rest assembly.
10 Lift the USB Type-C port bracket off the system board.
11 Disconnect the speaker cable from the system board.
12 Open the latch and disconnect the status-light board cable from the system board.
13 Open the latch and disconnect the keyboard cable from the system board.
14 Open the latch and disconnect the keyboard-backlight cable from the system board.

15 Remove the four screws (M2x2) that secure the system board to the palm-rest assembly and keyboard shield.
16 Lift the system board off the palm-rest assembly.
Replacing the system board

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

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

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

Procedure

1. Align the screw holes on the system board with the screw holes on the palm-rest assembly and keyboard shield.
2. Replace the four screws (M2x2) that secure the system board to the palm-rest assembly and keyboard shield.
3. Slide the status-light board cable, touchpad cable, keyboard-backlight cable, keyboard cable, I/O-board cable, display cable, and touch-screen board cable (optional) into their respective connectors on the system board and close the latches to secure the cables.
4. Connect the fan cable, hard-drive cable, speaker cable and power-adapter port cable to the system board.
5. Align the screw holes on the USB Type-C port bracket with the screw holes on the system board.
6. Replace the two screws (M2x3) that secure the USB Type-C port bracket to the system board.
7. Adhere the tape that secures the I/O-board cable to the system board.
8. Adhere the tapes that secure the display cable and touch-screen board cable (optional) to their respective connectors on the system board.
Post-requisites

1. Replace the power-adapter port.
2. Replace the heat sink.
3. Replace the memory modules.
4. Replace the solid-state drive/Intel Optane.
5. Replace the battery.
6. Replace the base cover.
Removing the status-light board

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

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

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

1. Open the latch and disconnect the status-light board cable from the system board.
2 Lift the status-light board along with the cable off the palm-rest assembly.
Replacing the status-light board

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

Procedure

1. Align and place the status-light board in the slot on the palm-rest assembly.
2. Slide the status-light board cable into the connector on the system board and close the latch to secure the cable.

Post-requisites

1. Replace the battery.
2. Replace the base cover.
Removing the touchpad

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

Prerequisites

1. Remove the base cover.
2. Remove the battery.

Procedure

1. Open the latch and disconnect the touchpad cable from the system board.
2 Peel the tapes that secure the touchpad to the keyboard shield.

3 Remove the four screws (M2x2) that secure the touchpad to the palm rest assembly.
4 Lift the touchpad, along with the cable, at an angle from under the touch-pad bracket off the palm-rest assembly.
Replacing the touchpad

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

Procedure

1. Align the screw holes on the touch pad with the screw holes on the palm-rest assembly.
2. Replace the four screws (M2x2) that secure the touchpad to the palm-rest assembly.
3. Adhere the tapes that secure the touchpad to the keyboard shield.
4. Slide the touchpad cable into the connector on the system board and close the latch to secure the cable.

Post-requisites

1. Replace the battery.
2. Replace the base cover.
Removing the keyboard

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

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the wireless card.
4. Remove the memory modules.
5. Remove the display assembly.
6. Remove the I/O board.
7. Remove the solid-state drive/Intel Optane.
8. Remove the heat sink.
9. Remove the fan.
10. Remove the hard drive.
11. Remove the power-adapter port.
12. Remove the system board.
Procedure

1. Peel off the tapes that secure the keyboard shield to the palm-rest assembly.

2. Remove the 26 screws (M1.4x2) that secure the keyboard shield and the keyboard to the palm-rest assembly.
3 Lift the keyboard shield off the keyboard.

4 Remove the eight screws (M1.2x1.5) that secure the keyboard to the palm-rest assembly.
Lift the keyboard off the palm-rest assembly.
Replacing the keyboard

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

Procedure

1. Place the keyboard membrane on the back of the keyboard.
2. Align the keyboard membrane with the folding line and fold the keyboard membrane.
3. Align the screw holes on the keyboard with the screw holes on the palm-rest assembly.
4. Replace the eight screws (M1.2x1.5) that secure the keyboard to the palm-rest assembly.
5 Place the keyboard shield onto the keyboard and align the screw holes on the keyboard shield with the screw holes on the keyboard and the palm-rest assembly.
6 Replace the 26 screws (M1.4x2) that secure the keyboard shield and the keyboard to the palm-rest assembly.
7 Adhere the tapes that secure the keyboard shield to the palm-rest assembly.

Post-requisites

1 Replace the system board.
2 Replace the power-adapter port.
3 Replace the hard drive.
4 Replace the fan.
5 Replace the heat sink.
6 Replace the solid-state drive/Intel Optane.
7 Replace the I/O board.
8 Replace the display assembly.
9 Replace the memory modules.
10 Replace the wireless card.
11 Replace the battery.
12 Replace the base cover.
Removing the palm rest

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

Prerequisites

1. Remove the base cover.
2. Remove the battery.
3. Remove the coin-cell battery.
4. Remove the wireless card.
5. Remove the memory modules.
6. Remove the display assembly.
7. Remove the I/O board.
8. Remove the solid-state drive/Intel Optane.
9. Remove the heat sink.
10. Remove the fan.
11. Remove the hard drive.
12. Remove the power-adapter port.
13. Remove the system board.
14. Remove the status-light board.
15. Remove the touchpad.
16. Remove the keyboard.
Procedure

After performing the steps in prerequisites, we are left with the palm rest.
Replacing the palm rest

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

Procedure

Place the palm rest on a clean and flat surface.

Post-requisites

1 Replace the keyboard.
2 Replace the touchpad.
3 Replace the status-light board.
4 Replace the system board.
5 Replace the power-adapter port.
6 Replace the hard drive.
7 Replace the fan.
8 Replace the heat sink.
9 Replace the solid-state drive/Intel Optane.
10 Replace the I/O board.
11 Replace the display assembly.
12 Replace the memory modules.
13 Replace the wireless card.
14 Replace the coin-cell battery.
15 Replace the battery.
16 Replace the base cover.
Downloading drivers

Downloading the audio driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click Product Support, enter the Service Tag of your computer, and then click Submit.
   - **NOTE**: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click Drivers & Downloads → Find it myself.
5. Scroll down the page and expand Audio.
6. Click Download to download the audio driver for your computer.
7. After the download is complete, navigate to the folder where you saved the audio driver file.
8. Double-click the audio driver file icon and follow the instructions on the screen to install the driver.

Downloading the graphics driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. Click Product Support, enter the Service Tag of your computer, and then click Submit.
   - **NOTE**: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click Drivers & downloads → Find it myself.
5. Scroll down the page and expand Video.
6. Click Download to download the graphics driver for your computer.
7. After the download is complete, navigate to the folder where you saved the graphics driver file.
8. Double-click the graphics driver file icon and follow the instructions on the screen to install the driver.
Downloading the USB 3.0 driver

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

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click Drivers & Downloads → Find it myself.
5. Scroll down the page and expand Chipset.
6. Click Download to download the USB 3.0 driver for your computer.
7. After the download is complete, navigate to the folder where you saved USB 3.0 driver file.
8. Double-click the USB 3.0 driver file icon and follow the instructions on screen to install the driver.

Downloading the Wi-Fi driver

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

   NOTE: If you do not have the Service Tag, use the auto-detect feature or manually browse for your computer model.
4. Click Drivers & downloads → Find it myself.
5. Scroll down the page and expand Network.
6. Click Download to download the Wi-Fi driver for your computer.
7. After the download is complete, navigate to the folder where you saved the Wi-Fi driver file.
8. Double-click the driver file icon and follow the instructions on the screen.

Downloading the media-card reader driver

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

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

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

### Downloading the chipset driver

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

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

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

### Downloading the network driver

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

![NOTE:](image)

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

4 Click **Drivers & downloads → Find it myself**.

5 Scroll down the page and expand **Network**.

6 Click **Download** to download the network driver for your computer.

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

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

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

Boot Sequence

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

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

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

- Removable Drive (if available)
- STXXXX Drive
  
  NOTE: XXX denotes the SATA drive number.

- Optical Drive (if available)
- Diagnostics

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

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

Navigation keys

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

<table>
<thead>
<tr>
<th>Keys</th>
<th>Navigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up arrow</td>
<td>Moves to the previous field.</td>
</tr>
</tbody>
</table>
**BIOS overview**

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

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

Use the BIOS Setup program for the following purposes:

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

**Entering BIOS setup program**

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

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

### System setup options

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

Table 3. System setup options—System information menu

<table>
<thead>
<tr>
<th>General</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Information</strong></td>
</tr>
<tr>
<td>BIOS Version</td>
</tr>
<tr>
<td>Service Tag</td>
</tr>
<tr>
<td>Asset Tag</td>
</tr>
<tr>
<td>Ownership Tag</td>
</tr>
<tr>
<td>Manufacture Date</td>
</tr>
<tr>
<td>Ownership Date</td>
</tr>
<tr>
<td>Express Service Code</td>
</tr>
<tr>
<td><strong>Memory Information</strong></td>
</tr>
<tr>
<td>Memory Installed</td>
</tr>
<tr>
<td>Memory Available</td>
</tr>
<tr>
<td>Memory Speed</td>
</tr>
<tr>
<td>Memory Channel Mode</td>
</tr>
<tr>
<td>Memory Technology</td>
</tr>
<tr>
<td>DIMM A Size</td>
</tr>
<tr>
<td>DIMM B Size</td>
</tr>
</tbody>
</table>
## General

### Processor Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor Type</td>
<td>Displays the processor type.</td>
</tr>
<tr>
<td>Core Count</td>
<td>Displays the number of cores on the processor.</td>
</tr>
<tr>
<td>Processor ID</td>
<td>Displays the processor identification code.</td>
</tr>
<tr>
<td>Current Clock Speed</td>
<td>Displays the current processor clock speed.</td>
</tr>
<tr>
<td>Minimum Clock Speed</td>
<td>Displays the minimum processor clock speed.</td>
</tr>
<tr>
<td>Maximum Clock Speed</td>
<td>Displays the maximum processor clock speed.</td>
</tr>
<tr>
<td>Processor L2 Cache</td>
<td>Displays the processor L2 Cache size.</td>
</tr>
<tr>
<td>Processor L3 Cache</td>
<td>Displays the processor L3 Cache size.</td>
</tr>
<tr>
<td>HT Capable</td>
<td>Displays whether the processor is HyperThreading (HT) capable.</td>
</tr>
<tr>
<td>64-Bit Technology</td>
<td>Displays whether 64-bit technology is used.</td>
</tr>
</tbody>
</table>

### Device Information

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SATA-0</td>
<td>Displays the SATA-0 device information of the computer.</td>
</tr>
<tr>
<td>SATA-2</td>
<td>Displays the SATA-2 device information of the computer.</td>
</tr>
<tr>
<td>M.2 PCIe SSD-0</td>
<td>Displays the M.2 PCIe SSD information of the computer.</td>
</tr>
<tr>
<td>LOM MAC Address</td>
<td>Displays the LOM MAC address of the computer.</td>
</tr>
<tr>
<td>Video Controller</td>
<td>Displays the video controller.</td>
</tr>
<tr>
<td>Video BIOS Version</td>
<td>Displays the video BIOS version.</td>
</tr>
<tr>
<td>Video Memory</td>
<td>Displays the video memory.</td>
</tr>
<tr>
<td>Panel Type</td>
<td>Displays the display panel type.</td>
</tr>
<tr>
<td>Native Resolution</td>
<td>Displays the display resolution.</td>
</tr>
<tr>
<td>Audio Controller</td>
<td>Displays the audio controller.</td>
</tr>
<tr>
<td>Wi-Fi Device</td>
<td>Displays the wireless device.</td>
</tr>
<tr>
<td>Bluetooth Device</td>
<td>Displays the bluetooth device.</td>
</tr>
</tbody>
</table>
## General

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Battery Information</strong></td>
<td>Displays the battery health information.</td>
</tr>
<tr>
<td><strong>Boot Sequence</strong></td>
<td>Displays the boot sequence.</td>
</tr>
<tr>
<td>Boot Sequence</td>
<td>Displays the available boot options.</td>
</tr>
<tr>
<td>Boot List Option</td>
<td>Displays the available boot options.</td>
</tr>
<tr>
<td><strong>Advanced Boot Options</strong></td>
<td></td>
</tr>
<tr>
<td>Enable Legacy Option ROMs</td>
<td>Enable or disable the Legacy Option ROMs.</td>
</tr>
<tr>
<td>Enable Attempt Legacy Boot</td>
<td>Enable or disable Attempt Legacy Boot.</td>
</tr>
<tr>
<td><strong>UEFI Boot Path Security</strong></td>
<td>Controls the security level for booting a UEFI boot path.</td>
</tr>
<tr>
<td><strong>Date/Time</strong></td>
<td>Displays the current date in MM/DD/YY format and current time in HH:MM:SS AM/PM format.</td>
</tr>
</tbody>
</table>

## System Configuration

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integrated NIC</strong></td>
<td>Controls the on-board LAN controller.</td>
</tr>
<tr>
<td>Enable UEFI Network Stack</td>
<td>Enable or disable UEFI Network Stack.</td>
</tr>
<tr>
<td><strong>SATA Operation</strong></td>
<td>Configures operating mode of the integrated SATA hard drive controller.</td>
</tr>
<tr>
<td><strong>Drives</strong></td>
<td>Enable or disable various drives on board.</td>
</tr>
<tr>
<td><strong>SMART Reporting</strong></td>
<td>Enable or disable SMART Reporting during system startup.</td>
</tr>
<tr>
<td><strong>USB Configuration</strong></td>
<td>Enable or disable booting from USB mass storage devices such as external hard drive, optical drive, and USB drive.</td>
</tr>
<tr>
<td>Enable Boot Support</td>
<td>Enable or disable booting from USB mass storage devices connected to external USB port.</td>
</tr>
<tr>
<td>Enable External USB Port</td>
<td>Enable or disable booting from USB mass storage devices connected to external USB port.</td>
</tr>
<tr>
<td>System Configuration</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>USB PowerShare</strong></td>
<td>Enable or disable charging external devices through the USB PowerShare port.</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>Enable or disable the integrated audio controller.</td>
</tr>
<tr>
<td><strong>Keyboard Illumination</strong></td>
<td>Configures operating mode of the keyboard illumination feature.</td>
</tr>
<tr>
<td><strong>Keyboard Backlight with AC</strong></td>
<td>Enable or disable Keyboard Backlight with AC.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> This option does not affect Keyboard Illumination.</td>
</tr>
<tr>
<td><strong>Miscellaneous Devices</strong></td>
<td>Enable or disable various onboard devices.</td>
</tr>
<tr>
<td>Enable Camera</td>
<td>Enable or disable the camera.</td>
</tr>
<tr>
<td>Enable Secure Digital (SD) Card</td>
<td>Enable or disable the SD card.</td>
</tr>
</tbody>
</table>

**Table 5. System setup options—Video menu**

<table>
<thead>
<tr>
<th>Video</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LCD Brightness</strong></td>
<td>Set the panel brightness independently for battery and AC power.</td>
</tr>
</tbody>
</table>

**Table 6. System setup options—Security menu**

<table>
<thead>
<tr>
<th>Security</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Admin Password</strong></td>
<td>Set, change, or delete the administrator password.</td>
</tr>
<tr>
<td><strong>System Password</strong></td>
<td>Set, change, or delete the system password.</td>
</tr>
<tr>
<td><strong>Internal HDD-2 Password</strong></td>
<td>Set, change, or delete the system’s internal hard-disk drive password.</td>
</tr>
<tr>
<td><strong>Strong Password</strong></td>
<td>Enable or disable strong passwords.</td>
</tr>
<tr>
<td><strong>Password Configuration</strong></td>
<td>Control the minimum and maximum number of characters allowed for Admin and System passwords.</td>
</tr>
<tr>
<td><strong>Password Bypass</strong></td>
<td>Bypass the System (Boot) Password and the internal HDD password prompts during a system restart.</td>
</tr>
</tbody>
</table>
## Security

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password Change</td>
<td>Enable or disable changes to the System and Hard Disk passwords when an administrator password is set.</td>
</tr>
<tr>
<td>Non-Admin Setup Changes</td>
<td>Enable or disable changes to the setup options when an administrator password is set.</td>
</tr>
<tr>
<td>UEFI Capsule Firmware Updates</td>
<td>Enable or disable BIOS updates through UEFI capsule update packages.</td>
</tr>
<tr>
<td>PTT Security</td>
<td>Enable or disable Platform Trust Technology (PTT) visibility to the operating system.</td>
</tr>
<tr>
<td>Computrace(R)</td>
<td>Enable or disable the BIOS module interface of the optional Computrace(R) Service from Absolute Software.</td>
</tr>
<tr>
<td>CPU XD Support</td>
<td>Enable or disable the Execute Disable mode of the Processor.</td>
</tr>
<tr>
<td>Admin Setup Lockout</td>
<td>Enable to prevent users from entering Setup when an Admin Password is set.</td>
</tr>
<tr>
<td>Master Password Lockout</td>
<td>Enable to disable master password support.</td>
</tr>
</tbody>
</table>

**NOTE:** Hard Disk passwords need to be cleared before the setting can be changed.

## Table 7. System setup options—Secure Boot menu

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure Boot Enable</td>
<td>Enable or disable the secure boot feature.</td>
</tr>
<tr>
<td><strong>Expert Key Management</strong></td>
<td></td>
</tr>
<tr>
<td>Expert Key Management</td>
<td>Enable or disable Expert Key Management.</td>
</tr>
<tr>
<td>Custom Mode Key Management</td>
<td>Select the custom values for expert key management.</td>
</tr>
</tbody>
</table>
### Table 8. System setup options—Intel Software Guard Extensions menu

<table>
<thead>
<tr>
<th>Intel Software Guard Extensions</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel SGX Enable</td>
<td>Enable or disable Intel Software Guard Extensions.</td>
</tr>
<tr>
<td>Enclave Memory Size</td>
<td>Set the Intel Software Guard Extensions Enclave Reserve Memory Size.</td>
</tr>
</tbody>
</table>

### Table 9. System setup options—Performance menu

<table>
<thead>
<tr>
<th>Performance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi Core Support</td>
<td>Enable multiple cores. Default: Enabled.</td>
</tr>
<tr>
<td>Intel SpeedStep</td>
<td>Enable or disable Intel Speedstep Technology. Default: Enabled.</td>
</tr>
<tr>
<td>C-States Control</td>
<td>Enable or disable additional processor sleep states. Default: Enabled.</td>
</tr>
<tr>
<td>Intel TurboBoost</td>
<td>Enable or disable Intel TurboBoost mode of the processor. Default: Enabled.</td>
</tr>
<tr>
<td>HyperThread control</td>
<td>Enable or disable HyperThreading in the processor. Default: Enabled.</td>
</tr>
</tbody>
</table>

**NOTE:** If enabled, the processor clock speed and core voltage are adjusted dynamically based on the processor load.

### Table 10. System setup options—Power Management menu

<table>
<thead>
<tr>
<th>Power Management</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Intel Speed Shift Technology</td>
<td>Enable or disable Intel Speed Shift Technology support. Enables the operating system to select the appropriate processor performance automatically.</td>
</tr>
<tr>
<td>Auto on Time</td>
<td>Enable to set the computer to turn on automatically every day or on a preselected date and time. This option can be configured only if the Auto On Time is set to Everyday, Weekdays or Selected Days. Default: Disabled.</td>
</tr>
</tbody>
</table>
**Power Management**

- **USB Wake Support**: Enable the USB devices to wake the computer from Standby.
- **Wake on LAN**: Enable the LAN signal to wake the computer from the off state or hibernation.
  
  **NOTE**: This feature only works when the computer is connected to AC.

- **Advanced Battery Charge Configuration**: Enable Advanced Battery Charge Configuration from the beginning of the day to a specified work period.
- **Primary Battery Charge Configuration**: Set the primary battery charge settings with a preselected custom charge start and stop. Default: Adaptive.

**Table 11. System setup options—POST Behavior menu**

**POST Behavior**

- **Adapter Warnings**: Enable adapter warnings. Default: Enabled.
- **Fn Lock Options**: Enable or disable the Fn lock mode.
- **Fastboot**: Enable to set the speed of the boot process. Default: Thorough.
- **Extended BIOS POST Time**: Creates an additional pre-boot delay.
- **Full Screen Logo**: Enable to display full screen logo.
- **Warnings and Errors**: Specify whether the boot process will continue or prompt for user input when warnings and errors are detected.

  **NOTE**: Critical errors will always halt the system.
Table 12. System setup options—Virtualization Support menu

<table>
<thead>
<tr>
<th>Virtualization Support</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtualization</td>
<td>Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology.</td>
</tr>
<tr>
<td>VT for Direct I/O</td>
<td>Specify whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel Virtualization Technology for Direct I/O.</td>
</tr>
</tbody>
</table>

Table 13. System setup options—Wireless menu

<table>
<thead>
<tr>
<th>Wireless</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Switch</td>
<td>Determine which wireless devices can be controlled by the Wireless Switch.</td>
</tr>
<tr>
<td>Wireless Device Enable</td>
<td>Enable or disable internal wireless devices.</td>
</tr>
</tbody>
</table>

Table 14. System setup options—Maintenance menu

<table>
<thead>
<tr>
<th>Maintenance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Tag</td>
<td>Display the computer’s Service Tag.</td>
</tr>
<tr>
<td>Asset Tag</td>
<td>Create a computer Asset Tag.</td>
</tr>
<tr>
<td>BIOS Downgrade</td>
<td>Control flashing of the system firmware to previous revisions.</td>
</tr>
<tr>
<td>Data Wipe</td>
<td>Enable to securely erase data from all internal storage devices.</td>
</tr>
<tr>
<td>BIOS Recovery</td>
<td>Enable the user to recover from certain corrupted BIOS conditions from a recovery file on the user primary hard drive or an external USB key.</td>
</tr>
</tbody>
</table>

Table 15. System setup options—System Logs menu

<table>
<thead>
<tr>
<th>System Logs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS Events</td>
<td>Display BIOS events.</td>
</tr>
<tr>
<td>Thermal Events</td>
<td>Display Thermal events.</td>
</tr>
</tbody>
</table>
System Logs

| Power Events | Display Power events. |

Table 16. System setup options—SupportAssist System Resolution menu

<table>
<thead>
<tr>
<th>SupportAssist System Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto OS Recovery Threshold</td>
</tr>
<tr>
<td>SupportAssist OS Recovery</td>
</tr>
</tbody>
</table>

System and setup password

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

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

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

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

⚠️ **NOTE:** Your computer is shipped with the system and setup password feature is disabled.

Assigning a system password and setup password

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

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

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter. The **Security** screen is displayed.
2 Select **System Password** and create a password in the **Enter the new password** field.

Use the following guidelines to assign the system password:

- A password can have up to 32 characters.
- The password can contain the numbers 0 through 9.
- Only lower case letters are valid, upper case letters are not allowed.
- Only the following special characters are allowed: space, ("), (+), (.), (-), (\), (/), (;), ([), (]), (`).

3 Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.

4 Press Esc and a message prompts you to save the changes.

5 Press Y to save the changes.

The computer reboots.

### Deleting or changing an existing system and/or setup password

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

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

1 In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.

   The **System Security** screen is displayed.

2 In the **System Security** screen, verify that **Password Status** is **Unlocked**.

3 Select **System Password**, alter or delete the existing system password and press Enter or Tab.

4 Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

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

5 Press Esc and a message prompts you to save the changes.

6 Press Y to save the changes and exit from System Setup.

The computer reboots.
Clearing CMOS settings

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

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

Clearing forgotten passwords

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

Flashing the BIOS

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

Follow these steps to flash the BIOS:

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

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

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

Enhanced Pre-Boot System Assessment (ePSA) diagnostics

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

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

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

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

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

### Running the ePSA diagnostics

1. Power-on the 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 key at the bottom left corner.
   - Diagnostics front page is displayed.
5. Press 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.

### Diagnostics

**Power and battery-status light/ hard-drive activity light:** Indicates the battery-charge status or the hard-drive activity.

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

**Hard-drive activity light**
Turns on when the computer reads from or writes to the hard drive.

**Power and battery-status light**
Indicates the power and battery-charge status.
**Solid white** – Power adapter is connected and the battery has more than 5 percent charge.

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

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

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

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

**Table 17. Diagnostics**

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

**Camera status light:** Indicates whether the camera is in use.
- **Solid white** – Camera is in use.
- **Off** – Camera is not in use.
**Caps Lock status light:** Indicates whether Caps Lock is enabled or disabled.

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

**Flea power release**

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

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

**Wi-Fi power cycle**

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

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 router.
6. Turn on the modem.
7. Turn on your computer.
## Getting help and contacting Dell

### Self-help resources

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

**Table 18. Self-help resources**

| Information about Dell products and services | [www.dell.com](http://www.dell.com) |
| Dell Help & Support app | ![Dell Help & Support icon](image) |

**Accessing help**

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

**Online help for operating system**

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

**Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.**

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

Dell knowledge base articles for a variety of computer concerns.

2. Type the subject or keyword in the **Search** box.
3. Click **Search** to retrieve the related articles.

Learn and know the following information about your product:

- Product specifications
- Operating system
- Setting up and using your product
- Data backup
- Troubleshooting and diagnostics

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

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

- Select **Detect Product**.
• Factory and system restore
• BIOS information

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

Contacting Dell

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

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

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