

Dell Latitude 7390

Owner's Manual



Notes, cautions, and warnings

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

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

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

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Working on your computer

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 notebook 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. notebooks.

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

Electrostatic discharge — ESD protection

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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.

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- **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.

Before working inside your computer

- 1 Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
- 2 Turn off your computer.
- 3 If the computer is connected to a docking device (docked), undock it.
- 4 Disconnect all network cables from the computer (if available).

 **CAUTION:** If your computer has an RJ45 port, disconnect the network cable by first unplugging the cable from your computer.

- 5 Disconnect your computer and all attached devices from their electrical outlets.
- 6 Open the display.
- 7 Press and hold the power button for few seconds, to ground the system board.

 **CAUTION:** To guard against electrical shock unplug your computer from the electrical outlet before performing Step # 8.

 **CAUTION:** To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface at the same time as touching a connector on the back of the computer.

- 8 Remove any installed ExpressCards or Smart Cards from the appropriate slots.

After working inside your computer

After you complete any replacement procedure, ensure that you connect external devices, cards, and cables before turning on your computer.

 **CAUTION:** To avoid damage to the computer, use only the battery designed for this particular Dell computer. Do not use batteries designed for other Dell computers.

- 1 Connect any external devices, such as a port replicator or media base, and replace any cards, such as an ExpressCard.
- 2 Connect any telephone or network cables to your computer.

 **CAUTION:** To connect a network cable, first plug the cable into the network device and then plug it into the computer.

- 3 Connect your computer and all attached devices to their electrical outlets.
- 4 Turn on your computer.

Removing and installing components

This section provides detailed information on how to remove or install the components from your computer.

Recommended tools

The procedures in this document require the following tools:

- Phillips #0 screwdriver
- Phillips #1 screwdriver
- Small plastic scribe

Screw size list

Table 1. Latitude 7390 - screw size list

Component	M2.5 x 6	M2 x 5	M2.5 x 3.5	M2 x 3	M2.5 x 4	M2 x 2.5	M2 x 2
Back cover	8 (captive screws)						
Battery—3-cell		1					
Battery—4-cell		2					
SSD module				1			
Heat sink module				4			
System fan				2			
Speaker				4			
WWAN card				1			
WLAN card				1			
Power connector port				1			
ESD bracket				1			
EDP bracket				2			
Touchpad buttons						2	
Fingerprint reader						1	
LED board						1	
Smart card reader cage						2	
Keyboard Lock bracket					1		
Display hinge			6				
Display panel(Not Applicable for HUD assembly)							2

Component	M2.5 x 6	M2 x 5	M2.5 x 3.5	M2 x 3	M2.5 x 4	M2 x 2.5	M2 x 2
Antenna—Infinity displays(Not Applicable for HUD assembly)				2			
Keyboard support plate						19	
Keyboard							5
System board				9			
Memory module bracket				1			

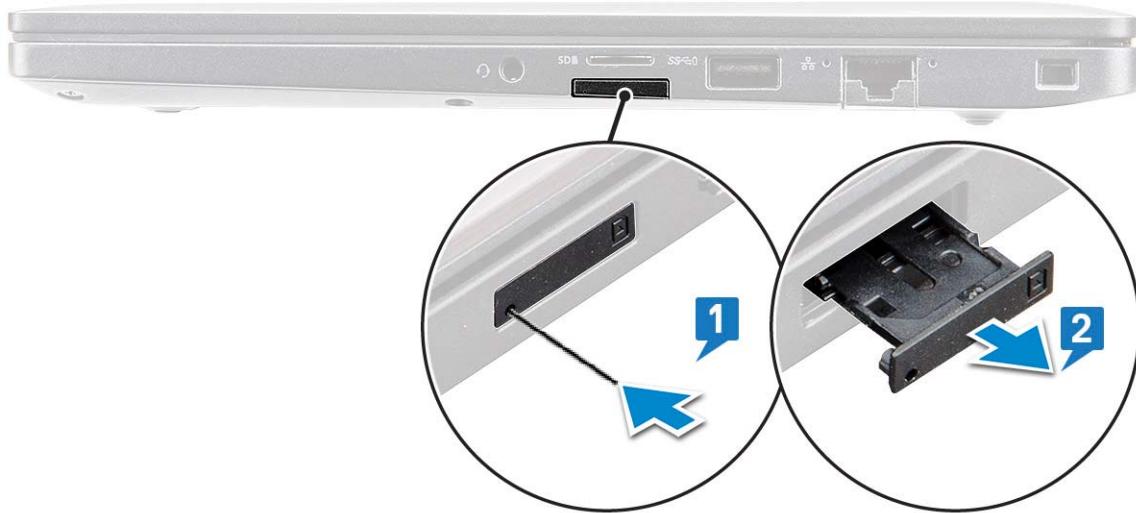
Subscriber Identification Module (SIM) card

Removing SIM card or SIM card tray

NOTE: SIM card or SIM card tray removal is only available on systems that are shipped with WWAN module. Hence, removing procedure is only applicable for systems that are shipped with WWAN module.

CAUTION: Removing the SIM card when the computer is On, may cause data loss or damage the card. Ensure that your computer is turned off or the network connections are disabled.

- 1 Insert a paperclip or a SIM card removal tool into the pinhole on the SIM card tray [1].
- 2 Use a scribe to pull the SIM card tray [2].
- 3 Remove the SIM card, if a SIM card is available from the SIM card tray.



NOTE: For Latitude 7390 , the SD memory card must be removed before replacing any system components. Failure to remove the SD memory card before the disassembly of other components may result in damage to the system

Replacing SIM card

NOTE: You can replace a SIM card only for those systems that are shipped with WWAN module.

- 1 Insert a paperclip or a SIM card removal tool into the pinhole on the SIM card tray.
- 2 Use a scribe to pull the SIM card tray.
- 3 Place on the SIM card on the tray.

- 4 Insert the SIM card tray into the slot.

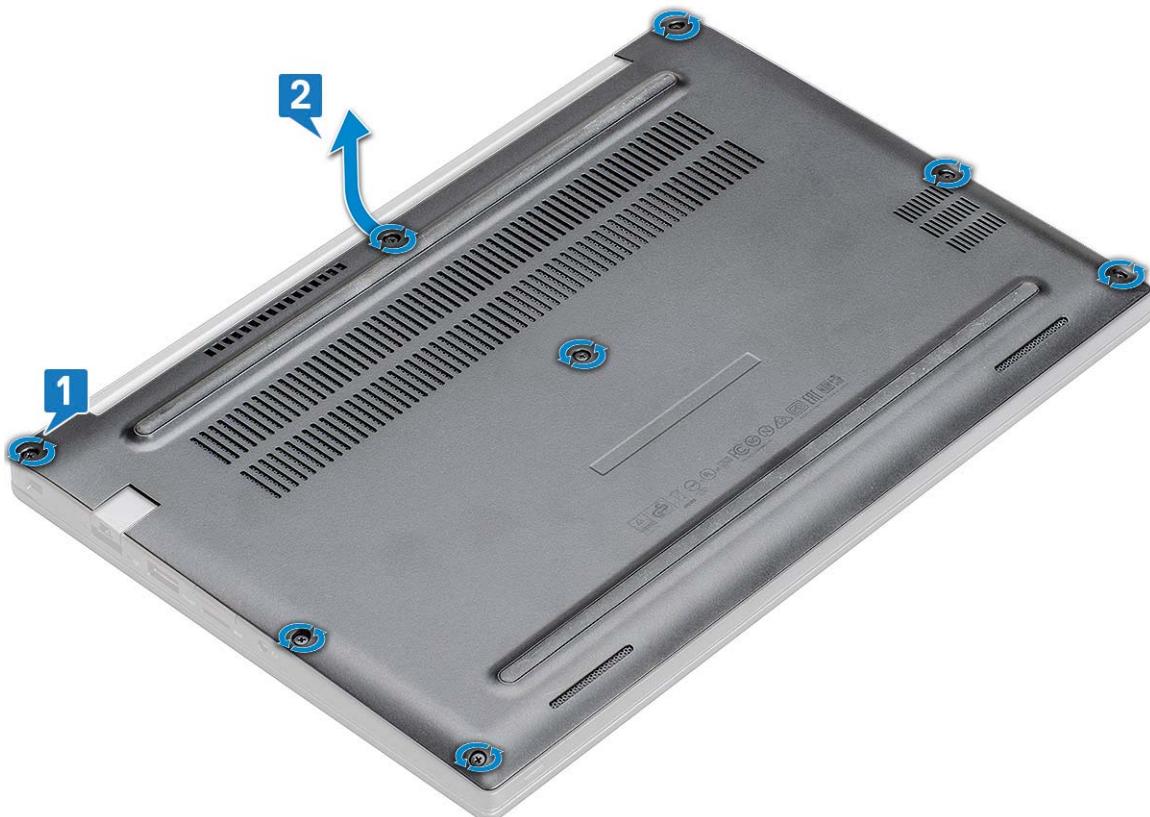
Base cover

Removing base cover

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 To release the base cover:
 - a Loosen the M2.5 x 6 captive screws (8) that secure the base cover to the computer [1].

NOTE: Exercise caution when loosening the screws. Angle the screwdriver to match the head of the front corners of screw, to avoid a possible stripped screw head.
 - b Use a plastic scribe to release the base cover from the edge and lift it from the computer [2].

NOTE: Pry the edges starting from SIM card tray button clockwise.



- CAUTION:** Exercise caution when loosening the screws. Angle the screwdriver to match the head of the screw (front corners on the laptop base cover) to avoid a possible stripped screw head.

- 3 Lift the base cover from the computer.



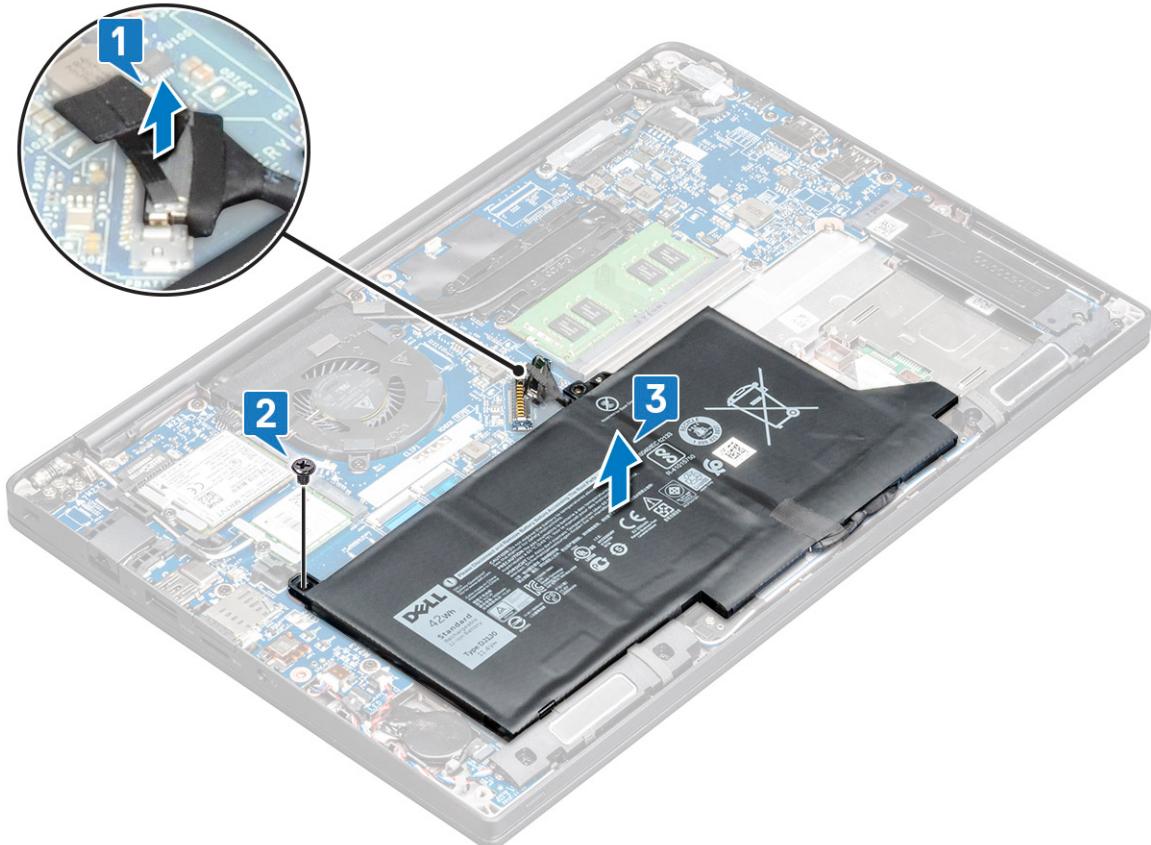
Installing base cover

- 1 Align the base cover tabs to the slots on the edges of the computer.
 - 2 Press the edges of the cover until it clicks into place.
 - 3 Tighten the M2.5 x 6.0 captive screws to secure the base cover to the computer.
- Remember: Exercise caution when tightening the screws. Angle the screw driver to match the head of the screw to avoid a possible stripped screw head.**
- 4 Follow the procedure in [After working inside your computer](#).

Battery

Removing 3-cell battery

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the [base cover](#).
- 3 To remove the battery:
 - a Disconnect the battery cable from the connector on the system board [1].
 - b Remove the M2 x 5 screw (1) that secures the battery to the computer [2].
 - c Lift the battery from the computer [3].

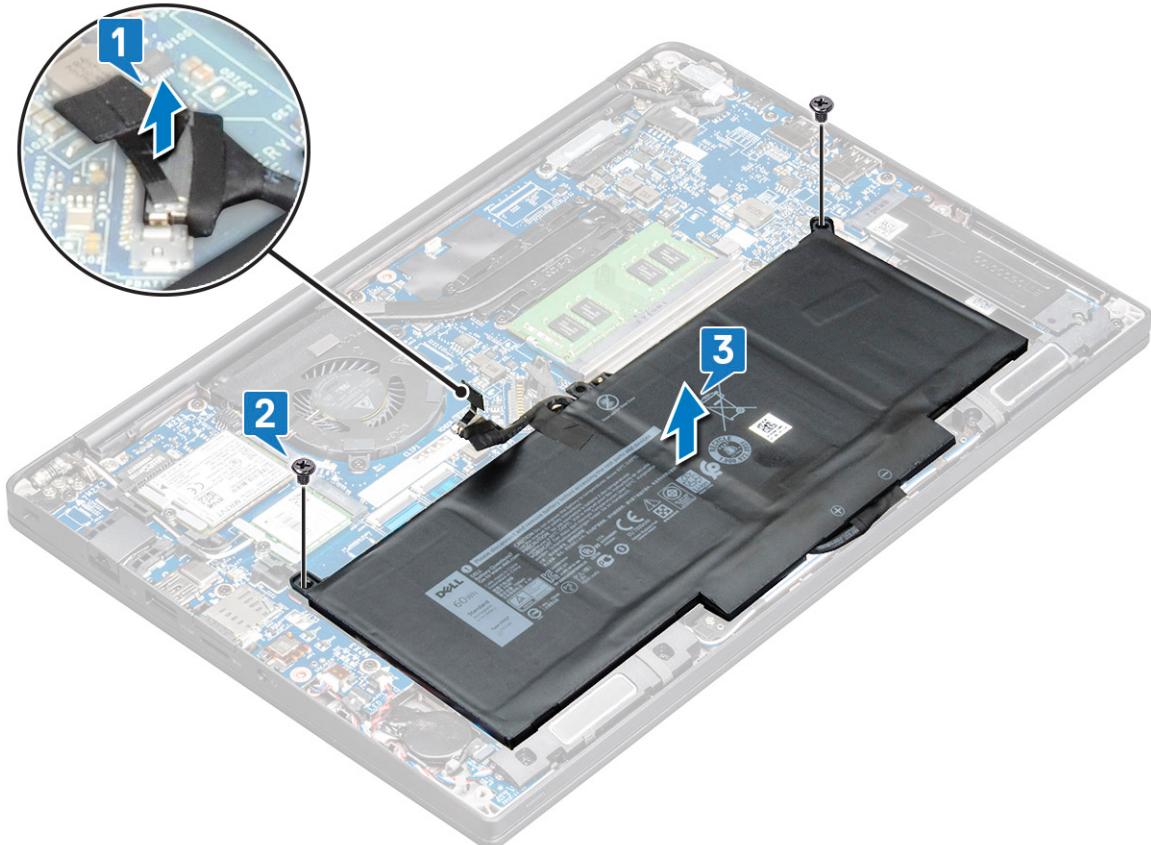


Installing 3-cell battery

- 1 Insert the battery into the slot on the computer.
 - 2 Route the battery cable through the routing clip and connect the battery cable to the connector on the system board.
- NOTE: Route the battery cable, if the cable at the base of the battery is un-routed.**
- 3 Replace the M2 x 5 screw to secure the battery to the computer.
 - 4 Install the [base cover](#)
 - 5 Follow the procedure in [After working inside your computer](#).

Removing 4-cell battery

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the [base cover](#).
- 3 To remove the battery:
 - a Disconnect the battery cable from the connector on the system board [1].
 - b Remove the M2 x 5 screw (2) that secure the battery to the computer[2].
 - c Lift the battery from the computer [3].



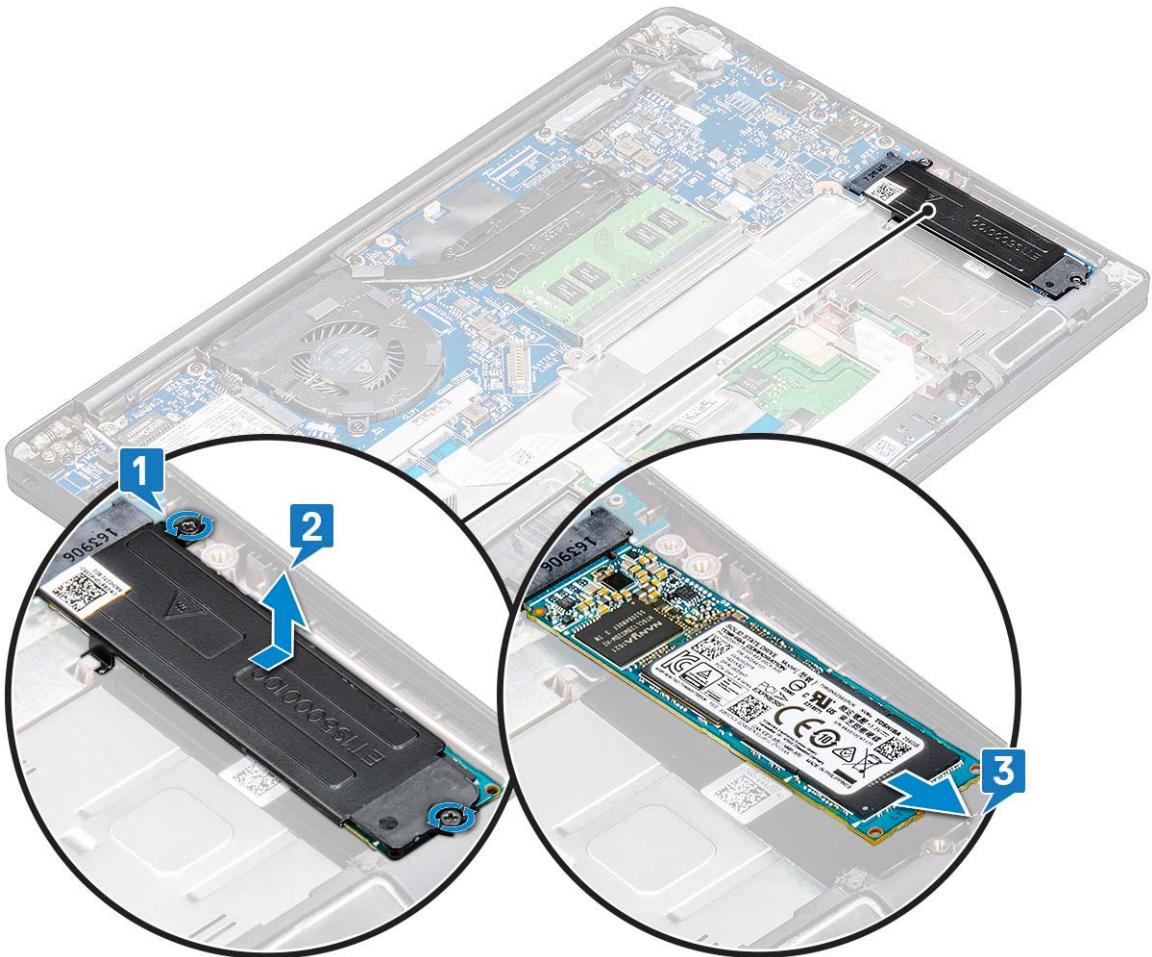
Installing 4-cell battery

- 1 Insert the battery into the slot on the computer.
 - 2 Route the battery cable through the routing clip and connect the battery cable to the connector on the system board.
- NOTE: Route the battery cable, if the cable at the base of the battery is un routed.**
- 3 Replace the M2 x 5 screws (2) to secure the battery to the computer.
 - 4 Install the [base cover](#)
 - 5 Follow the procedure in [After working inside your computer](#).

PCIe Solid State Drive (SSD)

Removing PCIe SSD

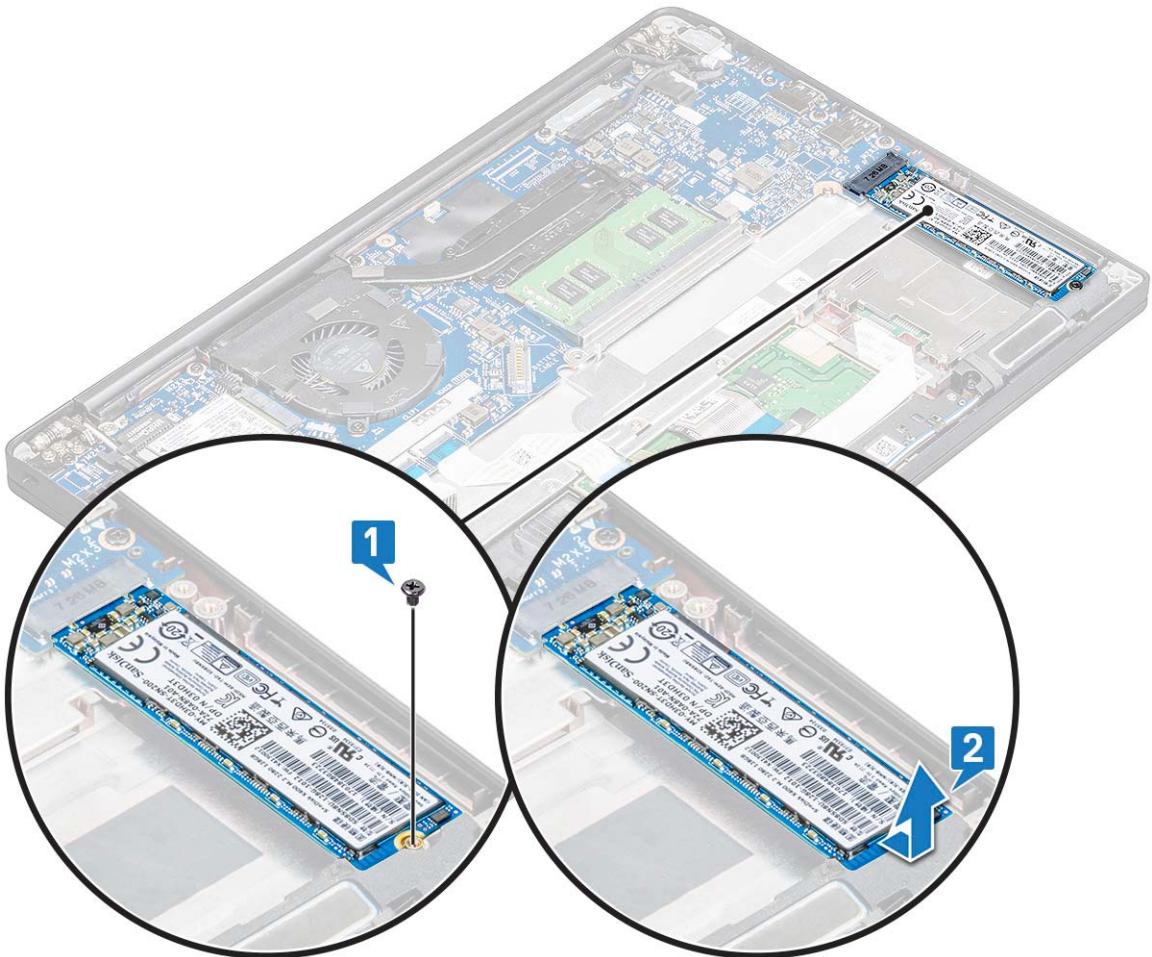
- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the PCIe SSD:
 - a Loosen the M2 x3 captive screw that secure the SSD bracket [1].
 - b Remove the SSD bracket [2].
 - c Remove the PCIe SSD from the connector on the system board [3].



Removing PCIe SSD without bracket

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the :
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the PCIe SSD:
 - a Loosen the M2.0x3.0 captive screw that secure the SSD bracket [1].
 - b Slightly lift the SSD and pull out from its connector [2].

NOTE: Ensure to lift the PCIe SSD card by an angle NOT more than 30°.



Installing PCIe SSD

- 1 Insert the PCIe SSD card into the connector.
- 2 Install the SSD bracket over the PCIe SSD card.

NOTE: When installing the SSD bracket, ensure that the tab on the bracket is held securely with the tab on the palm rest.

NOTE: Ensure to install the bracket is the system is shipped with bracket.

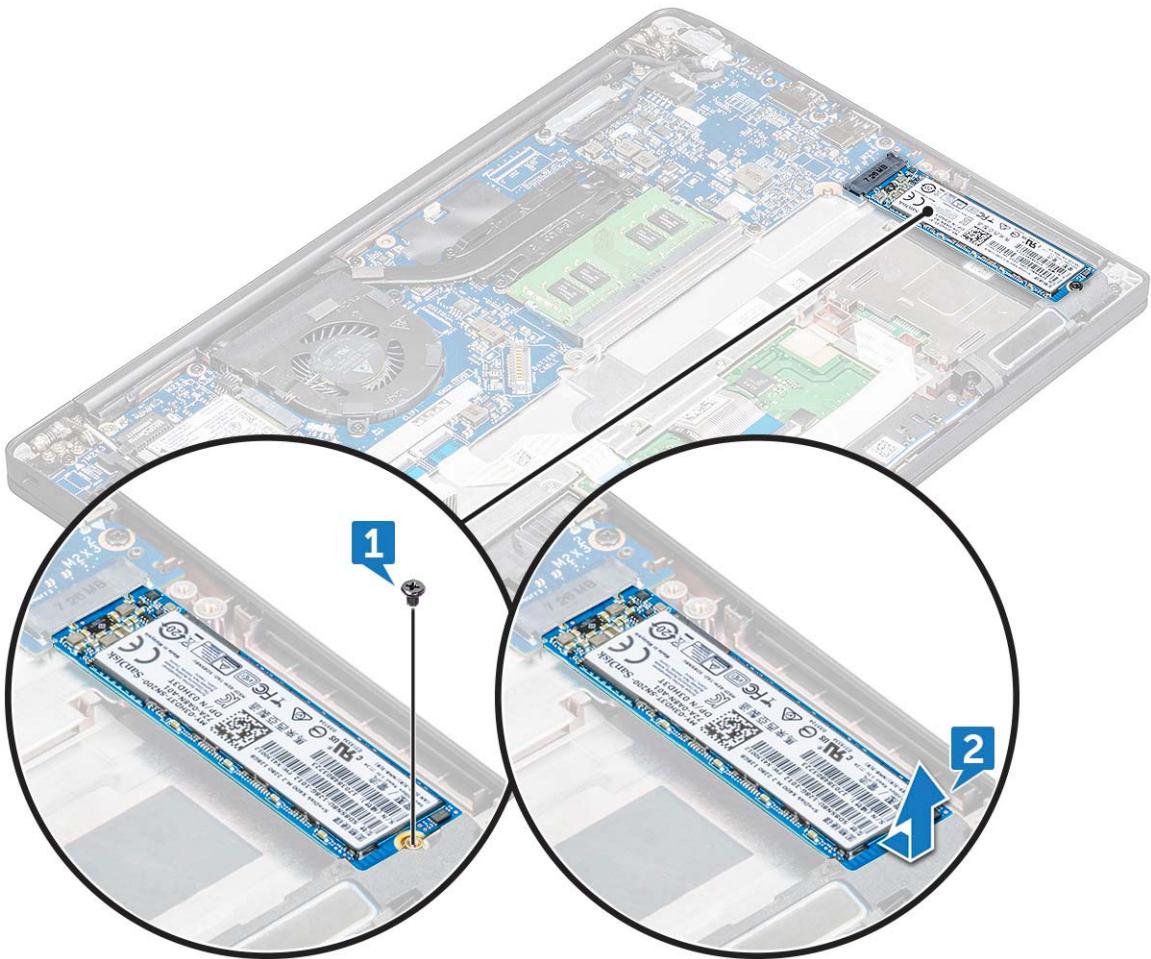
- 3 Tighten the M2 x 3 screws to secure it the SSD bracket.
- 4 Install the
 - a battery
 - b base cover
- 5 Follow the procedure in [After working inside your computer](#).

NOTE: For models shipped with NVMe SSDs, the SSD do not require installation of a thermal plate over the SSD, neither SATA SSDs require thermal plates.

SATA Solid State Drive (SSD)

Removing SATA SSD

- 1 Follow the procedure in [Before working inside your computer](#).
- 2 Remove the:
 - a [base cover](#)
 - b [battery](#)
- 3 To remove the SATA SSD:
 - a Remove the M2 x 3 screw that secures the SSD [1].
 - b Slide and lift the SSD to disconnect it from the connector [2].



Installing SATA SSD

- 1 Insert the SATA SSD card into the connector.
- 2 Tighten the screw to secure the SATA SSD to the system board.
- 3 Install the:
 - a [battery](#)
 - b [base cover](#)
- 4 Follow the procedure in [After working inside your computer](#).