Dell Latitude 7200 2-in-1

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.**

Contents

Working on your computer

Safety instructions

Prerequisite

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 the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or, if purchased separately, installed by performing the removal procedure in reverse order.

About this task

⚠ **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 power source.**

⚠ **WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the** Regulatory Compliance Homepage

⚠ **CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.**

⚠ **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.**

⚠ **CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.**

⚠ **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; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.**

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

⚠ **CAUTION: System will shut down if side covers are removed while the system is running. The system will not power on if the side cover is removed.**

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Turning off your computer — Windows 10

About this task

⚠ **CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer or remove the side cover.**

Steps

1   Click or tap ▦ .

2   Click or tap ⏻ and then click or tap **Shut down**.

> ⓘ **NOTE:** Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

Before working inside your computer

About this task

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

Steps

1 Ensure that you follow the Safety Instruction.

2 Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.

3 Turn off your computer.

4 Disconnect all network cables from the computer.

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

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

6 Press and hold the power button while the computer is unplugged to ground the system board.

> ⓘ **NOTE: 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.**

After working inside your computer

About this task

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

Steps

1 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.**

2 Connect your computer and all attached devices to their electrical outlets.

3 Turn on your computer.

4 If required, verify that the computer works correctly by running **ePSA diagnostics**.

Disassembly and reassembly

Disassembly and reassembly

Remove SD memory card and SIM card tray

1   Follow the procedure in Before working inside your tablet.

> ⓘ NOTE: **disconnect the power and drain flea power before preforming the steps**

2   Lay the tablet on a plane and flat surface, with the kickstand facing upward.

3   Press the SD memory card to release it.

> ⓘ NOTE: **Ensure to turn off or disconnect power, to drain flea power before removing or installing the memory card and/or SIM card.**

4   Slide the SD memory card out from the system.

5   To remove the SIM card tray from the system, insert a pin into the release hole to release the SIM card.

6   Remove the SIM card tray from the system.

Display Assembly

Removing the display assembly

1   Follow the procedure described in Before working on your tablet.

2   Open the kickstand by holding the tablet vertically and pressing it down. Place the tablet with the display facing down.

> ⓘ NOTE: **You can also open the kickstand from the speaker recess area.**

> ⓘ NOTE: **SIM card slot is available only on tablets shipping with WWAN module.**

3   Place the tablet on a flat surface and lift the stand to reveal the base of the tablet.

> ⓘ NOTE: **Ensure to open the kickstand to 145 degrees.**

4   To release the display panel assembly:

    a   Loosen the six captive screws securing the display back assembly in place.

    b   Close the kickstand [2] and flip the tablet to view the display.

5   Use a plastic scribe [1] to pry the edges [2] of the display panel starting from the bottom side first (near the docking port).

ⓘ **NOTE: Flip the tablet so the LCD is upward.**
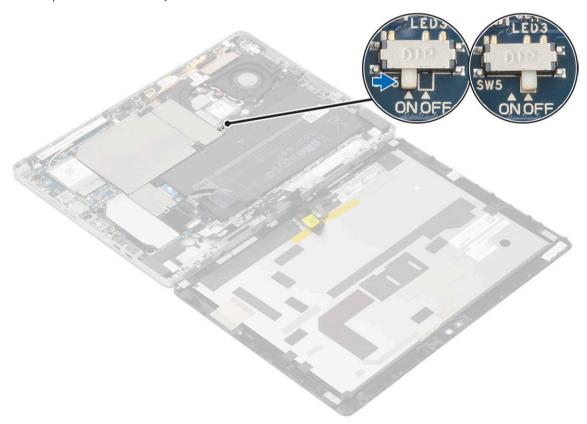
ⓘ **NOTE: Ensure to pry from the docking port and gently moving clockwise to avoid damage to the plastic clips. Use a plastic scribe.**
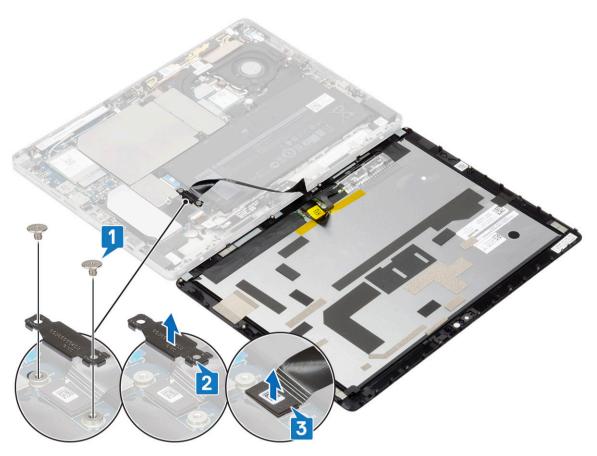
6   Flip the display panel on a plane surface with the LCD panel upwards.
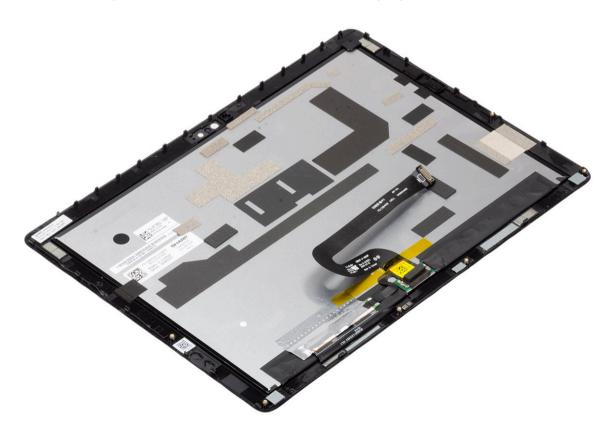
7   Slide the power switch on the system board to **OFF**.

8   Remove the two M2.5 X 3 screws securing the display cable bracket to the system board, and remove the display cable bracket.

9   Disconnect the display cable from the system board and remove the display panel assembly from the system.

Installing the display panel assembly

1 Place the display panel on a plane surface.
2 Connect the display cable to the connector on the system board
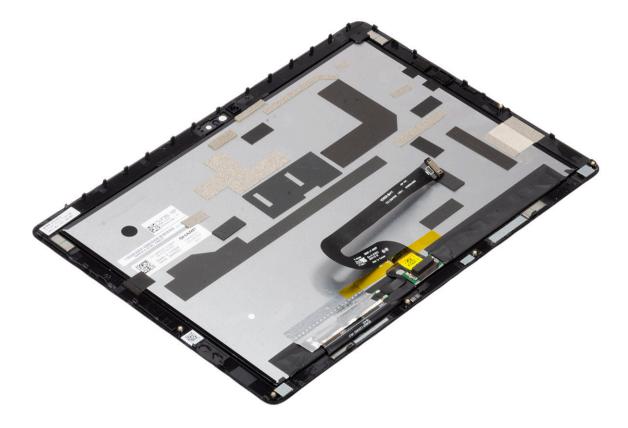
Figure 1. Connect the display cable

3 Connect the battery cable to the connector on the system board.
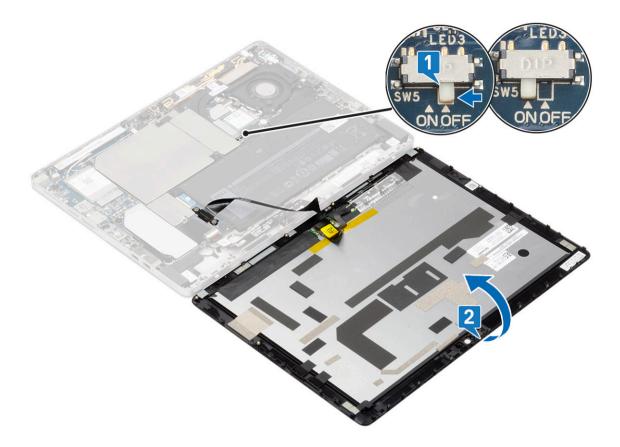
Figure 2. Connect the battery cable

4   Install the display panel on the tablet and press the edges until they snap in.

Figure 3. Install the display panel

5   Flip the tablet and open the kickstand.
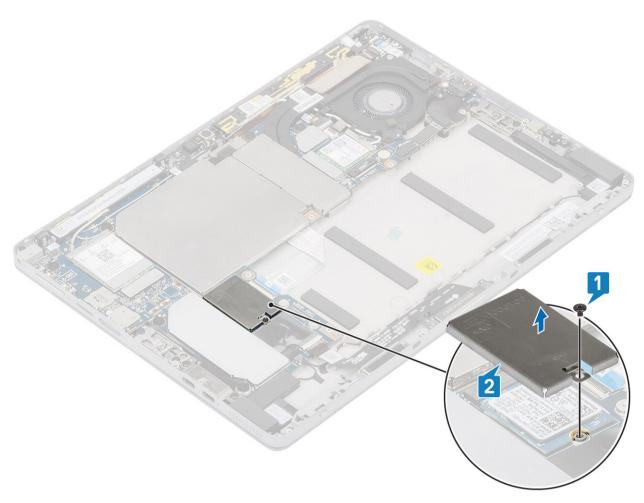
Figure 4. Flip the tablet

6   Replace the M1.6 x 3 screws to secure the tablet to the display panel.
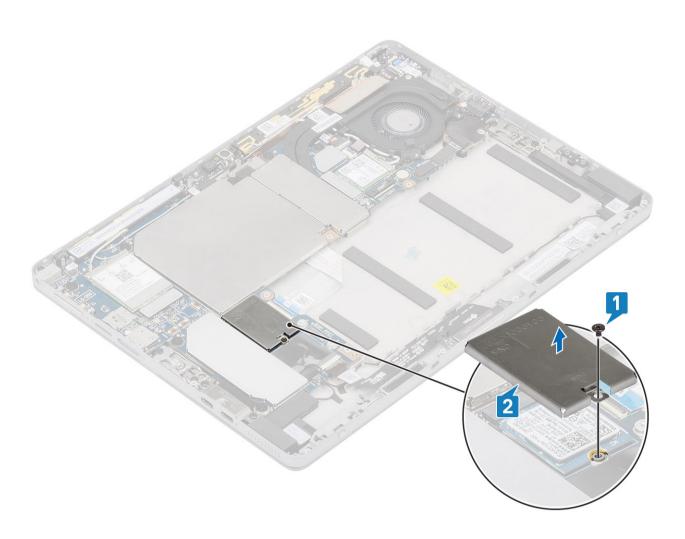
Solid State Drive (SSD)
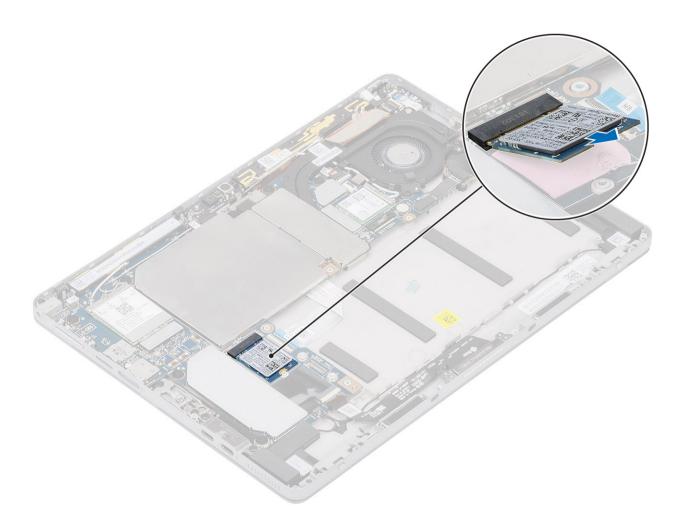
Removing the SSD module

1   Follow the procedure in before working inside your tablet.
2   Remove the:
    a   Remove the SIM card and display panel.

> ⓘ **NOTE: SIM card slot is available only on tablets shipping with WWAN module.**

3   To remove the SSD module:
    a   Remove the single M2 x 2.5 screw securing the M.2 2230 SSD shielding cover.
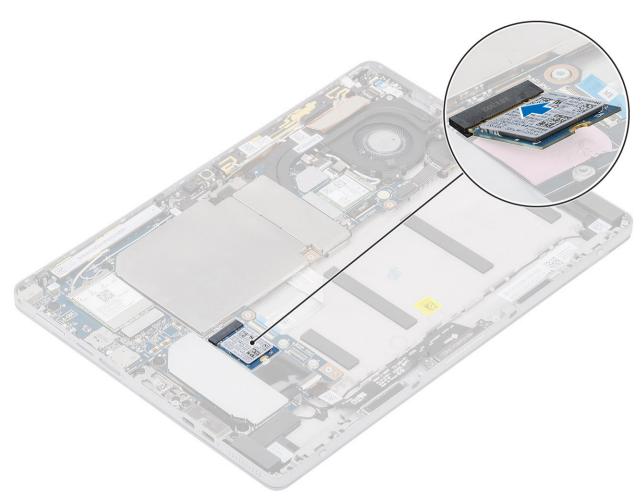
b   Lift the M.2 2230 SSD shielding cover from the tablet.

c   Slide and lift the SSD module from the slot on the tablet.

ⓘ NOTE: Ensure NOT to lift the SSD card by an angle more than 15°.
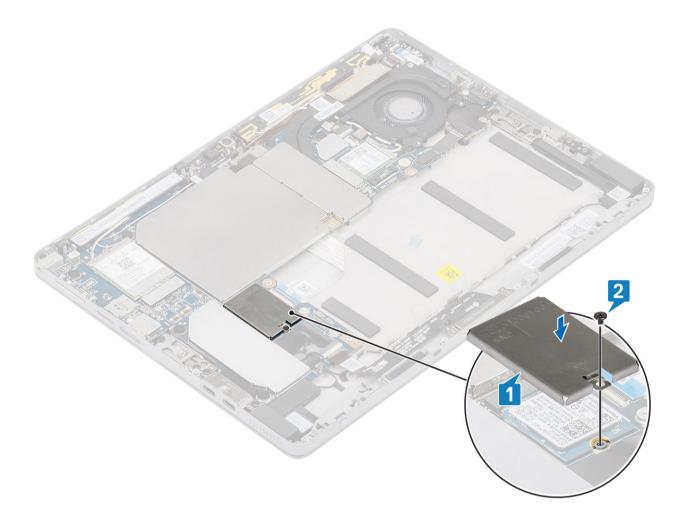
Installing SSD module

1   Insert the SSD module into the slot on the system board.

2   Replace the M2 x 2.5 screw to secure SSD shield.
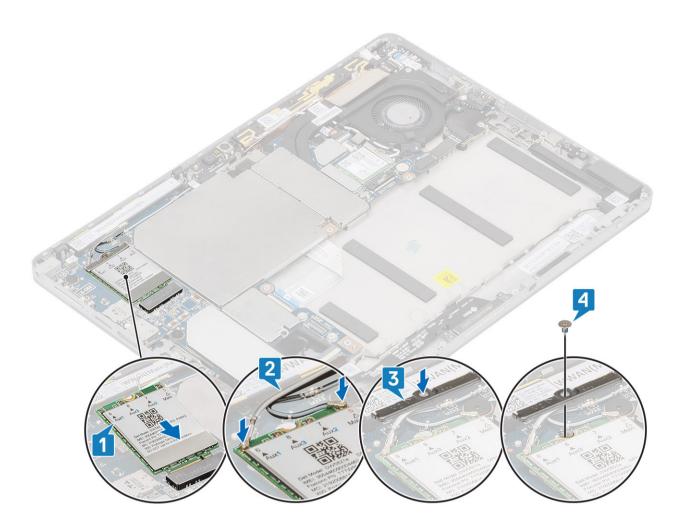
ⓘ **NOTE: Align the shield carefully to avoid damage to the clips heads.**

WLAN card
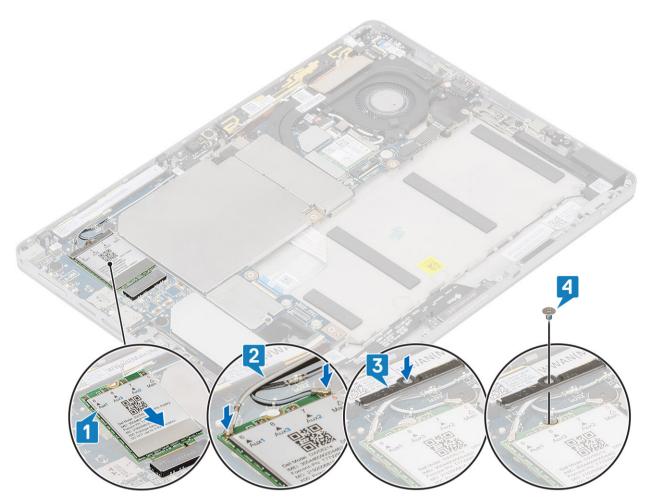
Removing the WWAN card

1   Follow the procedure explained in Before working on your tablet.
2   To remove the WWAN card:
    a   Remove the single captive screw securing the WWAN card bracket in place.
    b   Remove the WWAN card bracket.
    c   Disconnect any antennas connected to the WWAN card.
    d   Remove the WWAN card from the system.

Installing the WWAN card

1 Insert the WWAN card into the connector on the system board.
2 Connect the antenna cables to the WWAN card.
3 Insert the WWAN bracket to the WWAN card.
4 Replace the M2 x 3.5 screw to secure WWAN bracket.

5   Install the:

    a   Display panel

    b   SIM card

6   Follow the procedure in After working inside your tablet.

Battery

Lithium-ion battery precautions
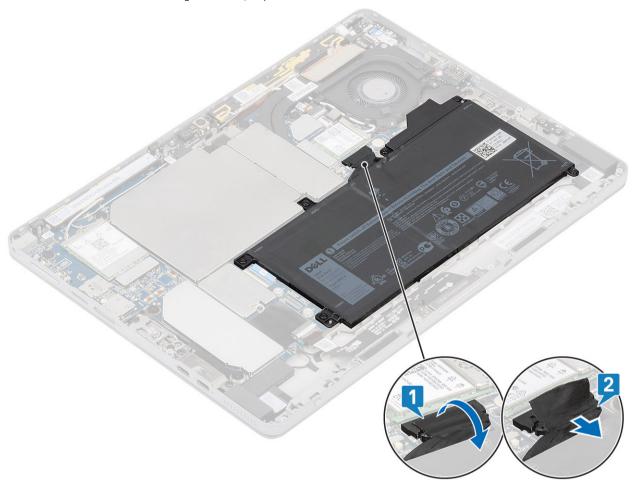
⚠️ **CAUTION:**

- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery as much as possible before removing it from the system. This can be done by disconnecting the AC adapter from the system to allow the battery to drain.
- 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.
- 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 Lithium-ion battery can be dangerous. In such an instance, the entire system should be replaced. Contact https://www.dell.com/support for assistance and further instructions.
- Always purchase genuine batteries from https://www.dell.com or authorized Dell partners and re-sellers.
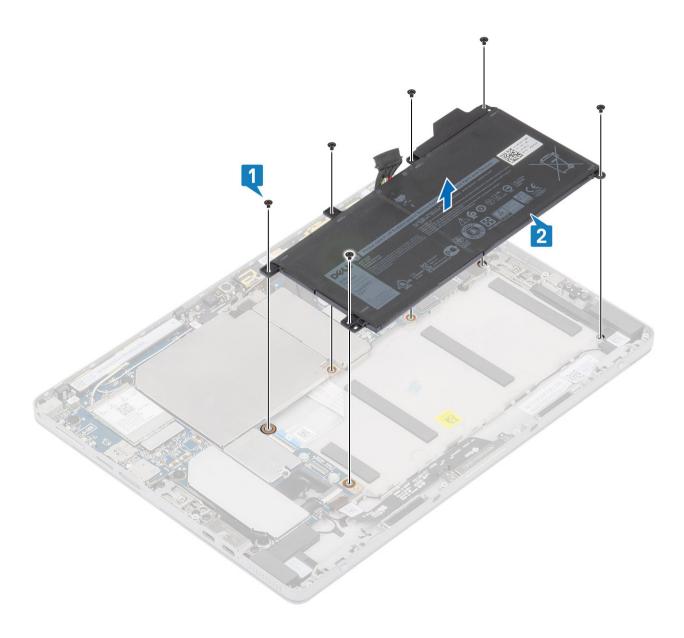
Removing the battery

1 Follow the procedure in Before working inside your tablet.
2 Remove the:
   a Remove the SIM card

   ⓘ **NOTE: SIM card slot is available only on tablets shipping with WWAN module.**

   b Remove the display panel.
3 To remove the battery:
   a Peel back the tape covering the battery connector.

b Remove the M2 X 4 screws securing the battery in place.
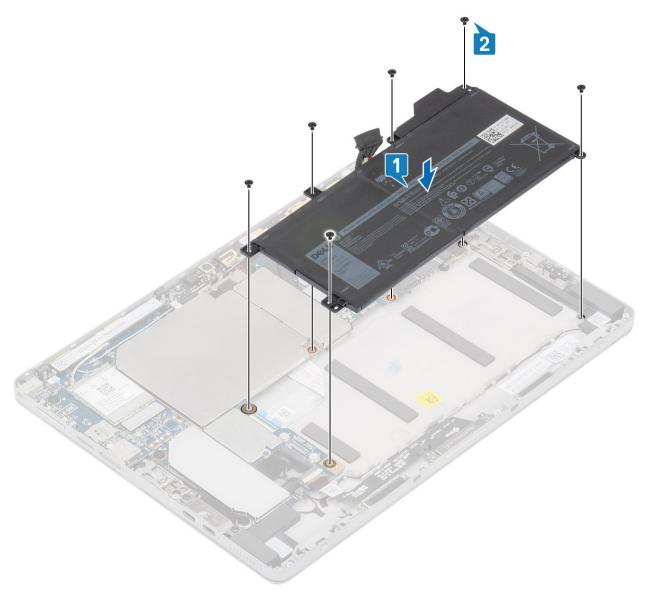
c Gently lift up the battery from its compartment on the display back cover and disconnect the battery cable from the system board.

d Remove the battery from the system.
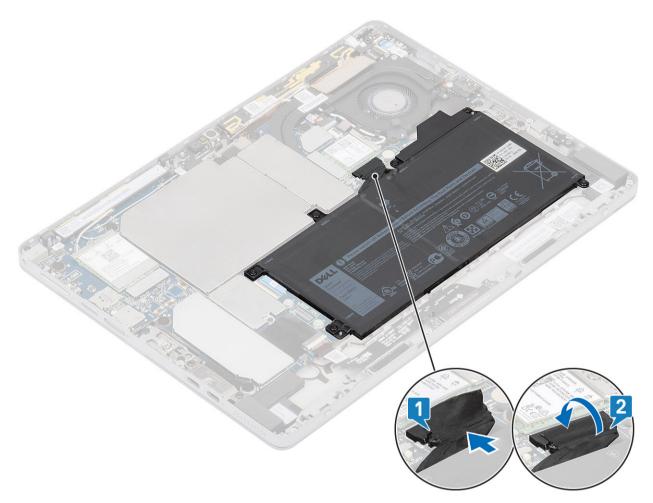
Installing the battery

1. Insert the battery into the slot on the tablet [1].
2. Replace the M2 x 4 screws to secure the battery to the tablet [2].

3   Connect the battery connector to the system board and fix the adhesive tape that secures the connector.

4   Install the:
    a   Display panel.
    b   SIM card.
5   Follow the procedure in After working inside your tablet.

Heat Sink

Removing heatsink

1   Follow the procedure in Before working inside your tablet.
2   Remove the:
    a   SD memory card and Wireless card
    b   Display panel.
3   To remove the heatsink assembly:
    a   Using a plastic scribe, gently remove the left and right shielding covers covering the heatsink starting from the edges marked with an arrow.
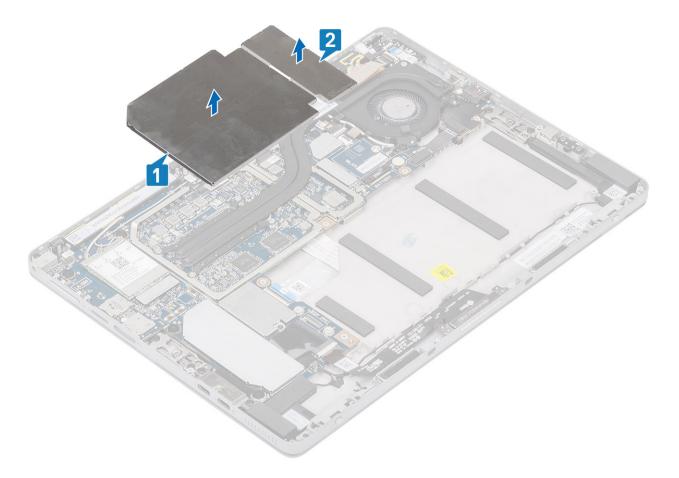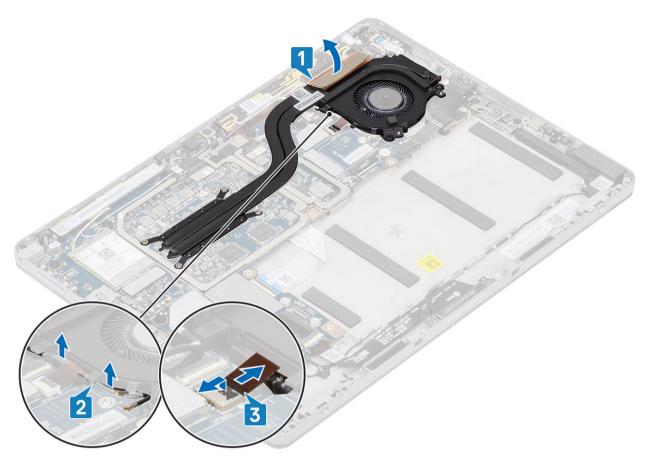
Figure 5. Remove heatsink shielding cover
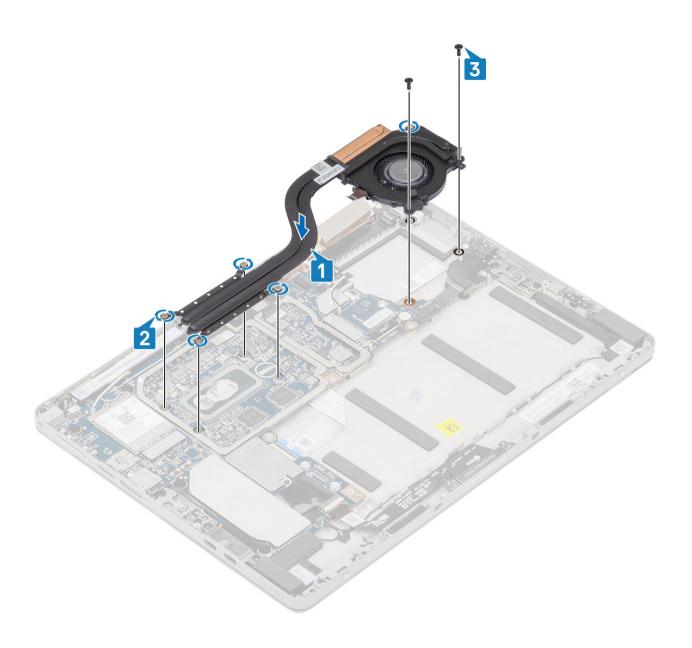
b   Unthread the wireless antennas from the routing channels next to the fan, and disconnect the fan cable from the system board.

4   Disconnect the fan cable from the system board.

5   Remove the three MXX screws securing the fan in place and loosen the four captive screws (1>2>3>4) securing the heatsink in place.

6   Remove the thermal assembly from the system.
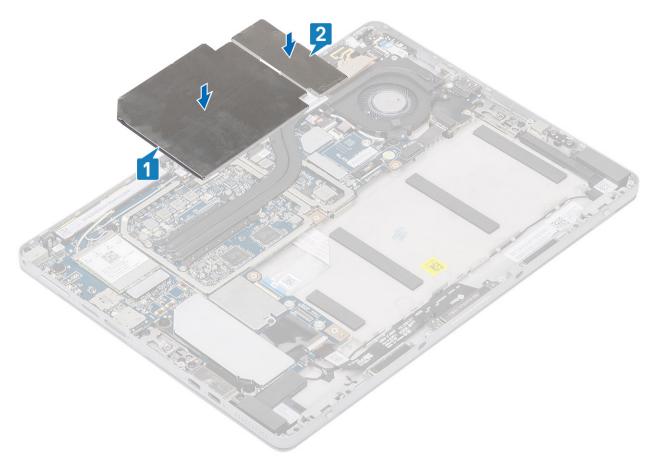
Installing heat sink

1   Follow the procedure in Before working inside your tablet.

2   Remove the:

3   To install the heat sink assembly:

    a   Place the thermal assembly inside the system.

b   Tighten the captive screws securing the heatsink in place and place and tighten the three M2 X 2.5 screws.

c   Route and fix the cable to the system board, tighten the wireless antenna in place.
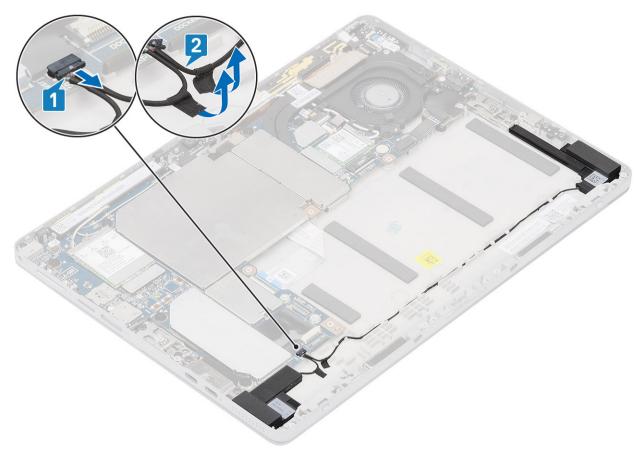
4   Install the SD Memory Card, Display Panel Assembly and Wireless Card.

Speaker

Removing the speaker
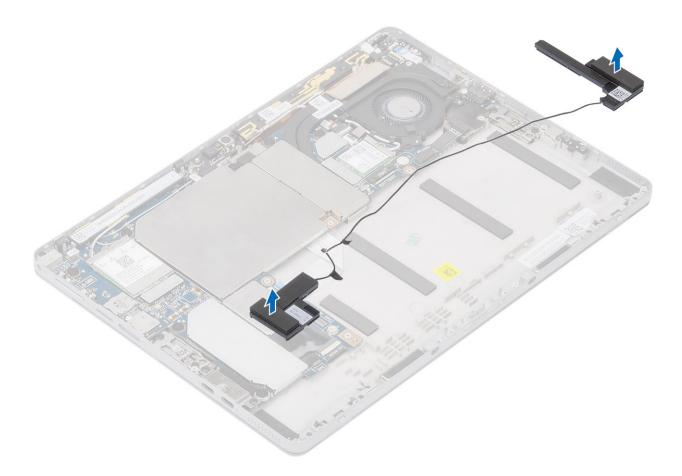
1   Follow the procedure in Before working inside your tablet.
2   Remove the:
    a   SIM card.

> ⓘ **NOTE: SIM card slot is available only on tablets shipping with WWAN module.**

    b   Display panel.
    c   Docking Connector.
3   To remove the speaker:
    a   Disconnect the speaker cable from the system board [1].

b   Remove the speaker cable from it's routing channels [2].
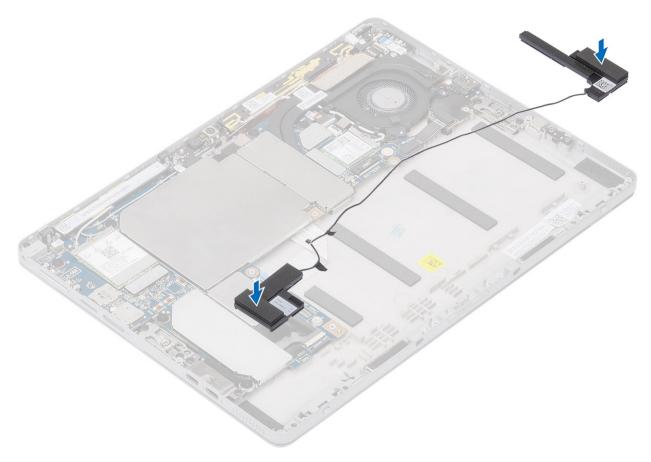
c   Using a plastic scribe, peel off and remove both the speakers from the system.

Installing speaker
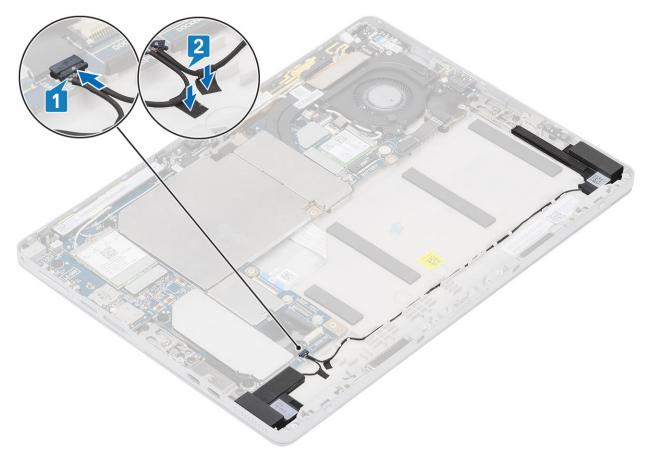
1   Insert the speaker in the block on the system board.

2   Connect the cables to the system board.

3   Press the speaker and insert it in the slot in the tablet.
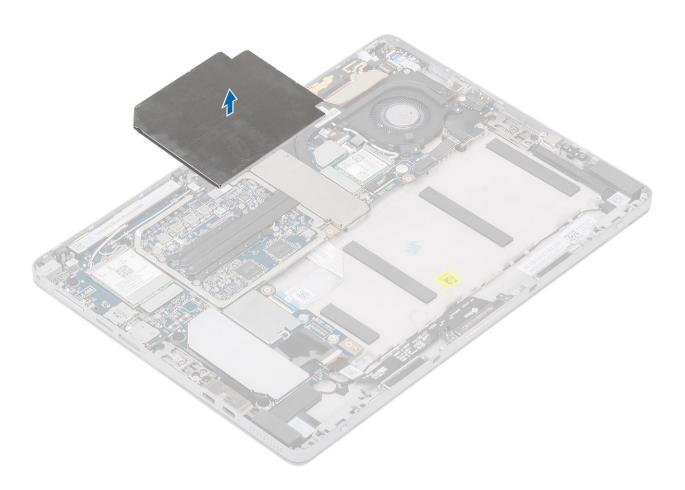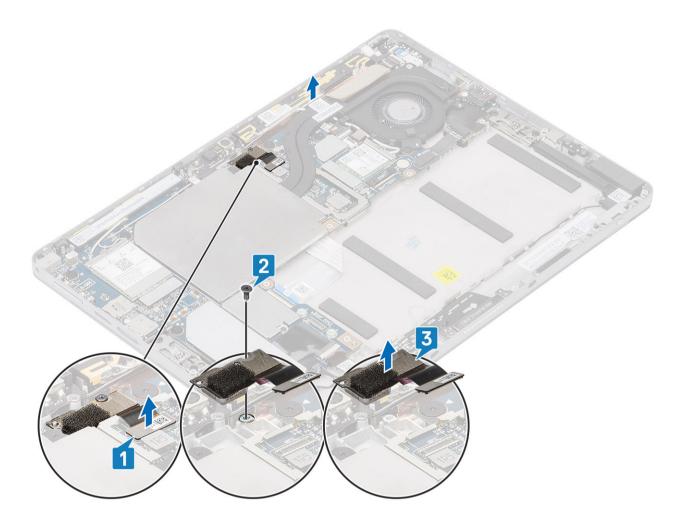
4　Install the:
- a　Display panel.
- b　SIM card.
- c　Docking Connector.

5　Follow the procedure in After working inside your tablet.

Front facing camera

Removing front camera
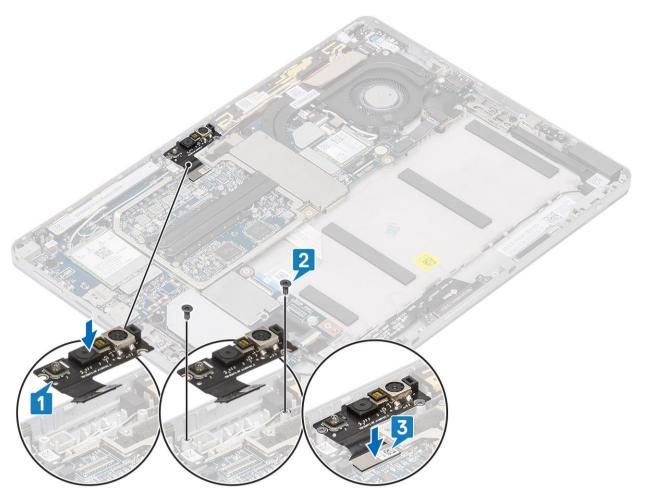
1　Follow the procedure in Before working inside your tablet.

2　Remove the:
- a　SD memory card.
- b　Display panel

3　To remove the front camera:
- a　Using a plastic scribe, gently pry open and remove the left shielding cover from the edge marked with an arrow.
- b　Disconnect the front-facing camera cable from the system board.
- c　Use a plastic scribe to pry and disconnect the front camera cable [3]

> ⓘ NOTE: **Ensure to peel off the adhesive tape that secures the front camera to the rear camera. The front camera cable is glued to the rear camera, ensure to gently peel off, to remove the screw that secures the rear camera to the system board.**

- d　Remove the M1.6 x 3 screws securing the front camera module to the system chassis.
- e　Peel off and lift the front camera module from the tablet.
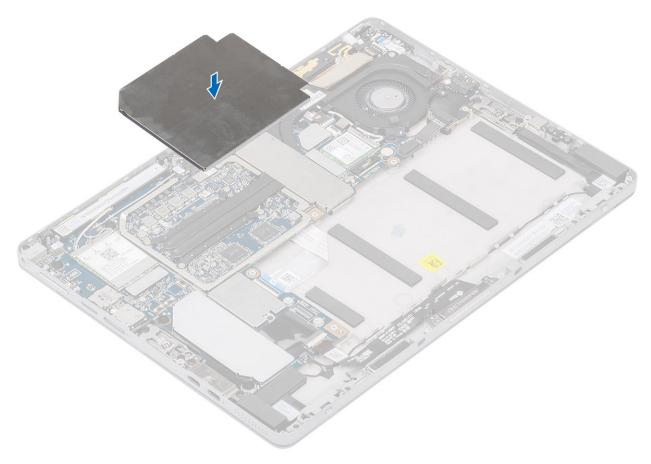
Installing the front camera

1   Insert the camera module into the slot on the tablet.

2   Replace the M1.6 x 3 screws to secure the front camera module.

3   Connect the front camera cable to the system board.

4   Place the shielding cover to secure the front camera module.

ⓘ NOTE: **Handle the covering shield with care else it may break.**

5   Affix the camera module, and shielding cover.
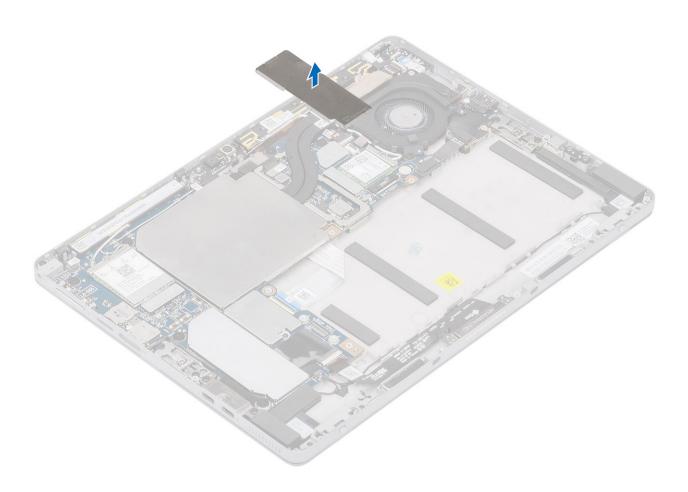
6   Install the:
  a   Display panel.
  b   SD memory card.
7   Follow the procedure in After working inside your tablet.

Rear facing camera

Removing the rear camera
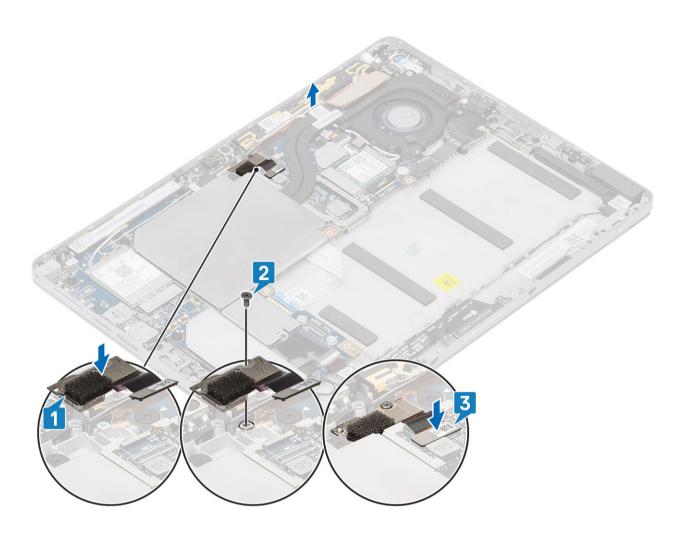
1   Follow the procedure in Before working inside your tablet.
2   Remove the:
  a   SD memory card.
  b   Display panel.
3   To remove the rear camera:
  a   Using a plastic scribe, gently pry open and remove the right shielding cover from the edge marked with an arrow.
  b   Disconnect the rear camera cable from the system board.
  c   Remove the M1.6 x 3 screw securing the rear camera module.
  d   Lift the camera module from the tablet.
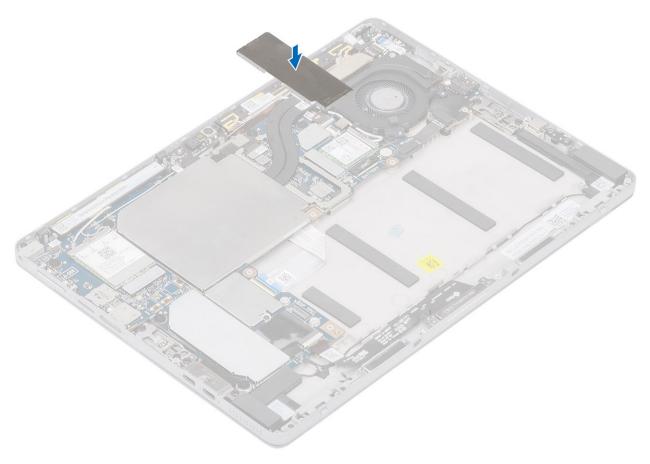
Installing rear camera

1 Follow the procedure in Before working inside your tablet.
2 To install the rear camera:
    a   Place the camera module on the tablet.
    b   Tighten the M1.6 x 3 screw securing the rear camera module.
    c   Fix the rear camera cable on the system board.
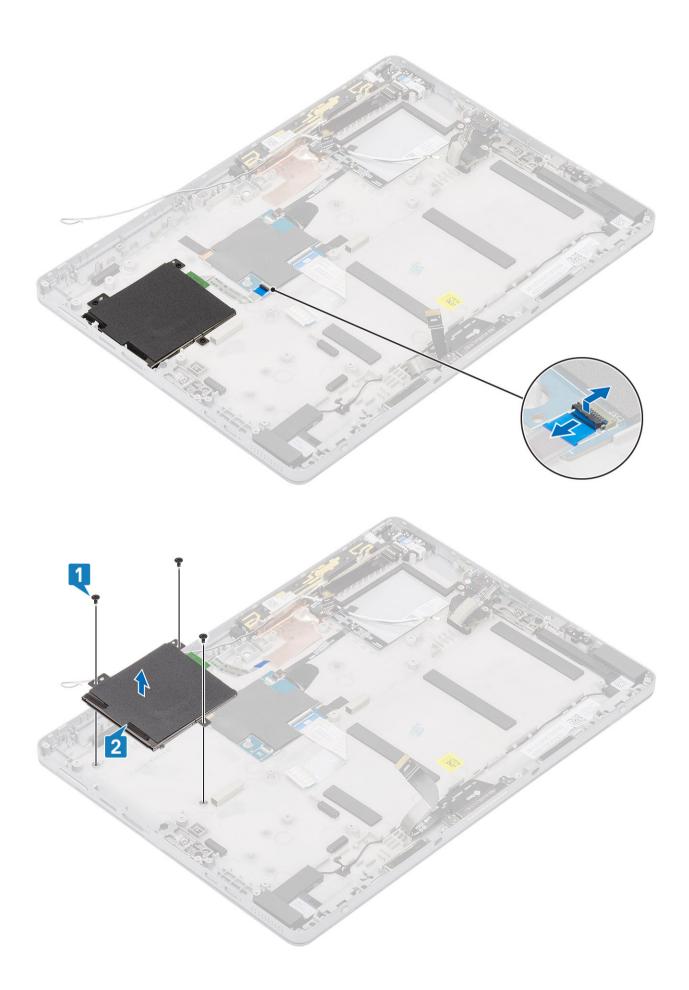
3   Install the:
    a   SD memory card.
    b   Display panel

Smart Card Cage
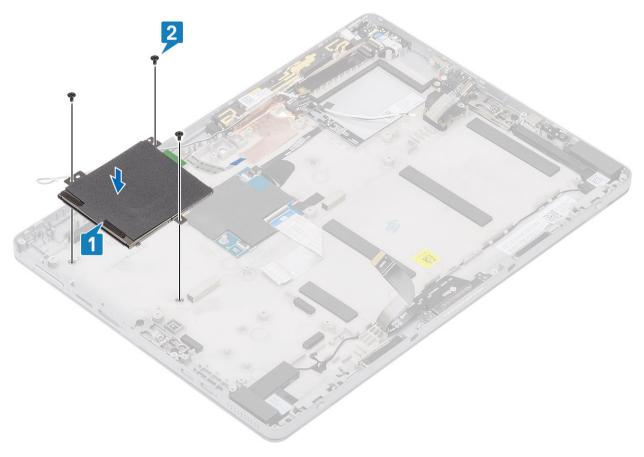
Removing the smart card cage
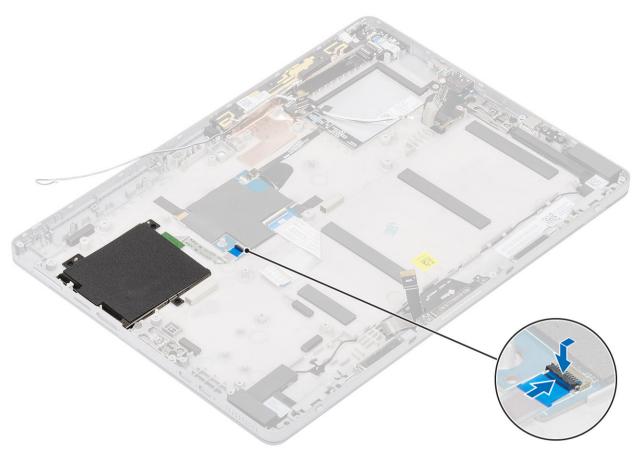
1   Follow the procedure in Before working inside your tablet.
2   Remove the SD Memory Card, SIM Card Tray or Dummy SIM Card Tray (for models shipped with a WWAN card), Display Panel Assembly, Battery, M.2 2230 SSD, Wireless Card, WWAN card (for models shipped with a WWAN card), Rear-Facing Camera, Thermal Assembly, Dummy WWAN Main Antenna Module, WWAN Main Antenna Module (for models shipped with a WWAN card), and System Board.
3   To remove the smart card cage:
    a   Disconnect and peel back the Smartcard cage FFC from the daughter board.
    b   Remove the M2.0 x 2.5 screws from the smart card module [1].
    c   Lift the smart card cage from the tablet [2].

Installing the smart card cage

1   Insert the smart cage into the slot on the tablet.

2   Replace the M2 x 2.5 screws [2] to secure the smart card cage to the tablet [1].

3   Connect the smart cable to the smart card module.
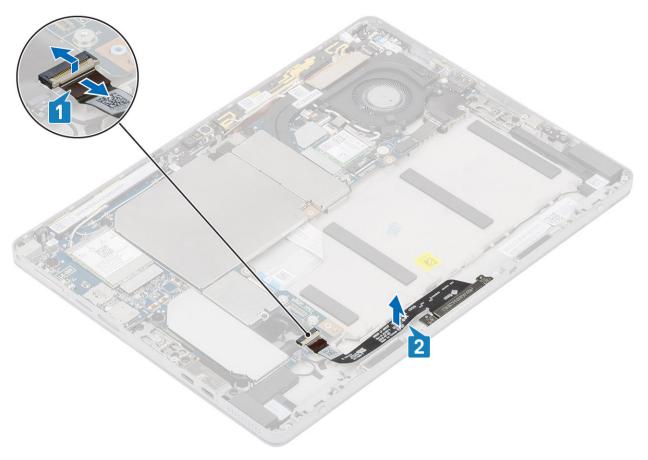
4 Remove the SD Memory Card, SIM Card Tray or Dummy SIM Card Tray (for models shipped with a WWAN card), Display Panel Assembly, Battery, M.2 2230 SSD, Wireless Card, WWAN card (for models shipped with a WWAN card), Rear-Facing Camera, Thermal Assembly, Dummy WWAN Main Antenna Module, WWAN Main Antenna Module (for models shipped with a WWAN card), and System Board.

5 Follow the procedure in After working inside your tablet.
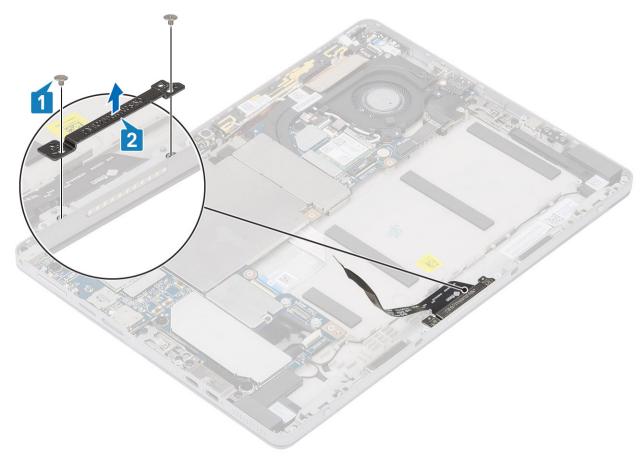
Docking board

Removing the docking connector

1 Follow the procedure in Before working inside your tablet.

2 Remove the:
   a SD memory card.
   b Display panel.

3 To remove the docking connector:
   a Disconnect and peel back the docking connector FPC from the system board.

b   Remove the M2 x 2 screws securing the docking board bracket to the docking board.
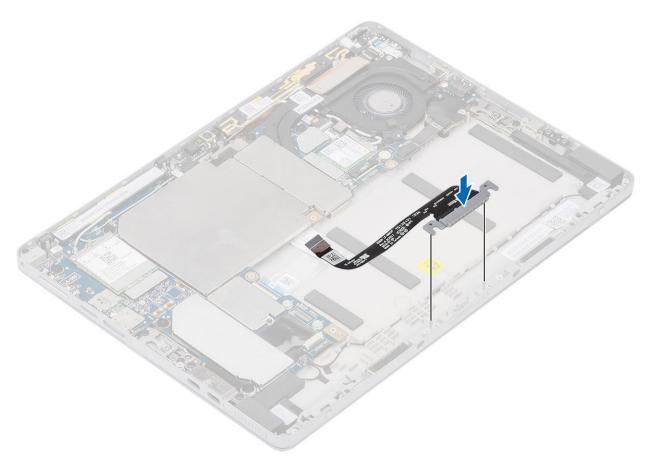
c   Remove the docking connector along with its FPC from the system.
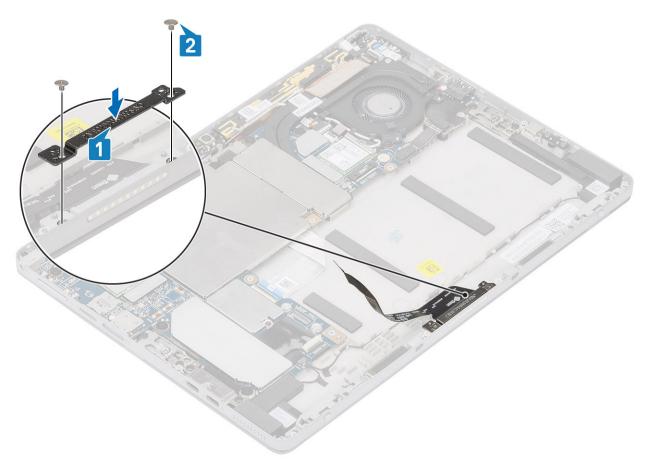
Installing the docking board
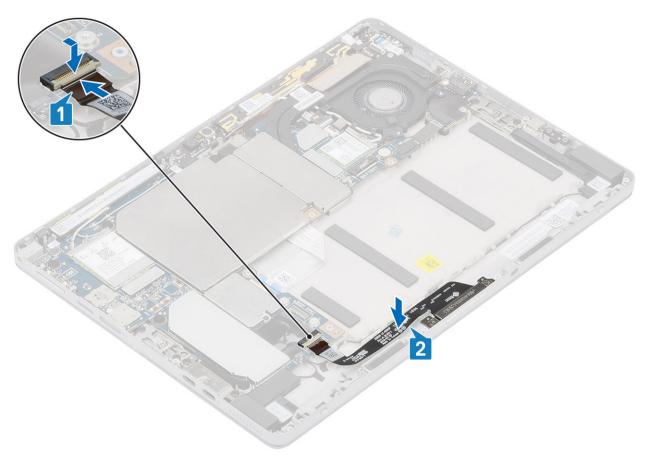
1   Insert the docking board and docking board bracket into the slot on the tablet.

2   Replace the M2 x 2 screws to secure the docking board to the tablet.

3   Affix the docking board cable on the tablet,

4   Connect the docking board cable to the connector on the system board.

5   Install the:
    a   Display panel
    b   SD memory card.
6   Follow the procedure in After working inside your tablet.

Power Button Board

Removing the power button daughter board

1   Follow the procedure in Before working inside your tablet.
2   Remove the SD Memory Card, Display Panel Assembly, Battery, and Thermal Assembly.
3   Unthread any wireless antennas covering the power button daughter board FPC.
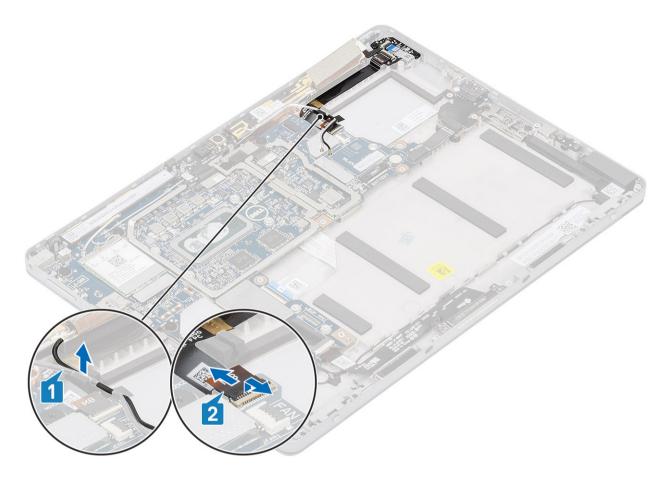
Figure 6. Unthread wireless antennas

4   Disconnect and peel back the power button daughter board FPC from the system board.

5   Disconnect and peel back the fingerprint reader FFC from the power button daughter board.

6   Remove the two M2 X 2.5 screws securing the power button daughter board in place.
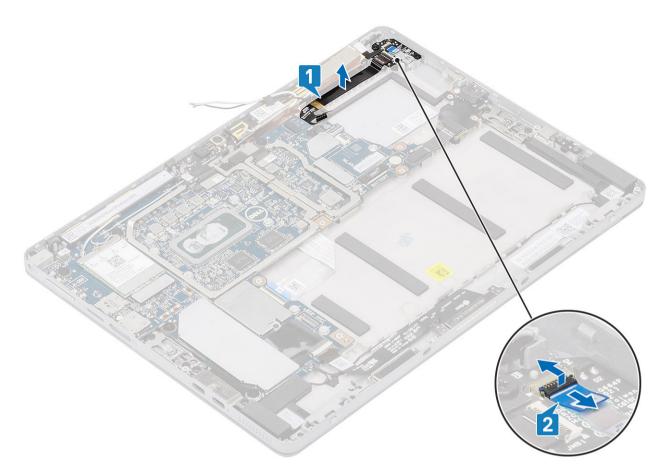
Figure 7. Remove the FFC

7 Using a plastic scribe, pry the power button sensor at the top edge of the power button daughter board out of its compartment.

8 Remove the power button daughter board along with its FPC from the display back cover.

9 Disconnect the power button daughter board FPC from the power button daughter board.
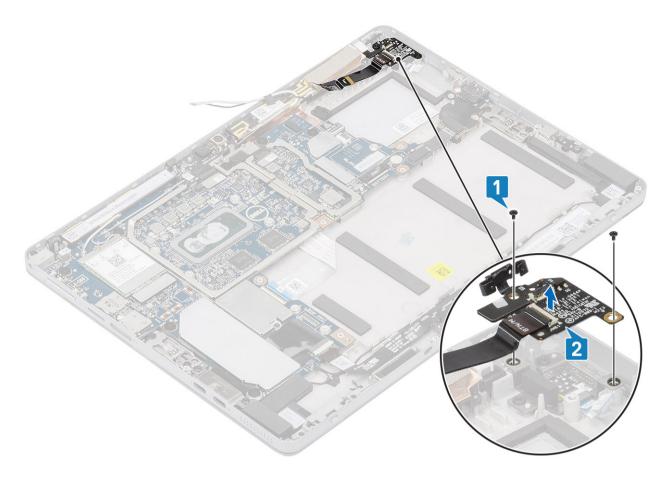
Figure 8. Disconnect and remove the power button board

Installing the power button board

1   Follow the procedure in Before working inside your tablet.
2   Fix the daughter board along with its FPC from the display back cover.
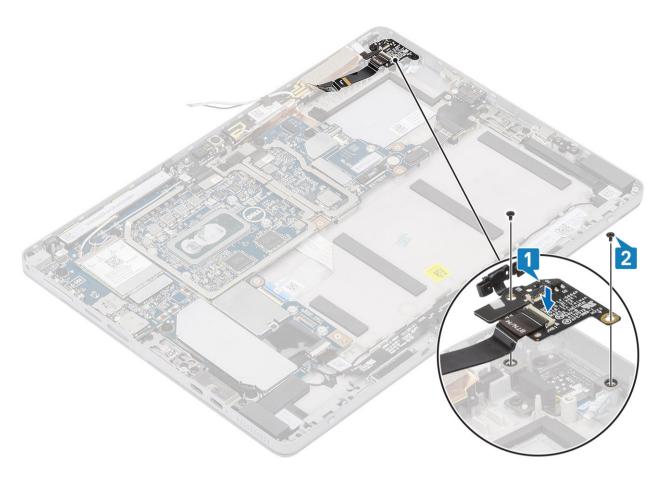
Figure 9. Fix the daughter board with the FPC

3   Fix the two M2 X 2.5 screws securing the power button daughter board in place.

4   Install the fingerprint reader FFC on the power button daughter board.
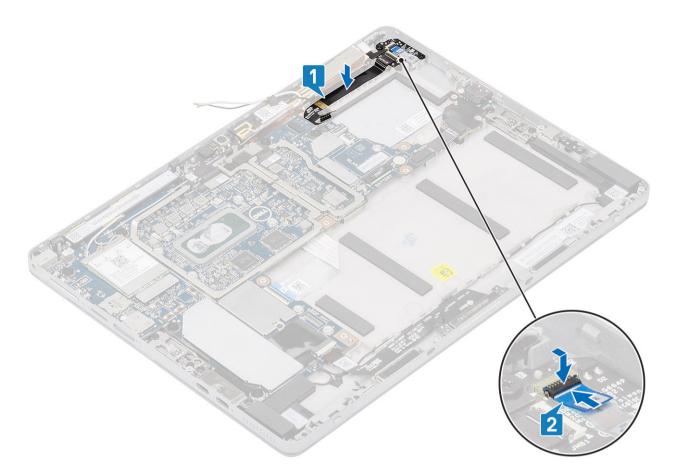
Figure 10. Install the FPC

5 Thread any wireless antennas covering the power button daughter board FPC.
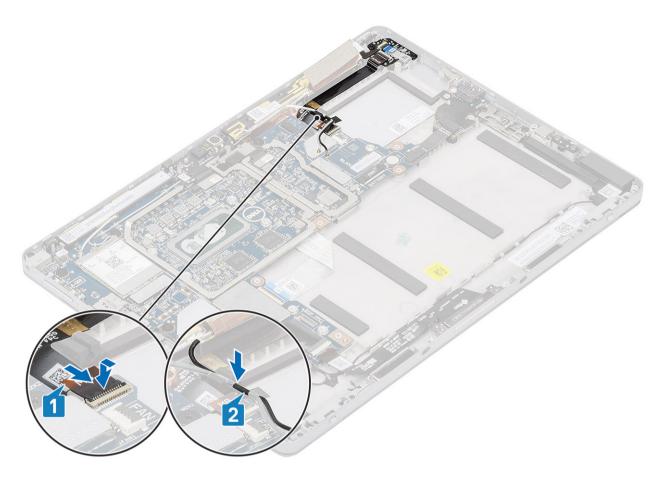
Figure 11. Thread the wireless antenna
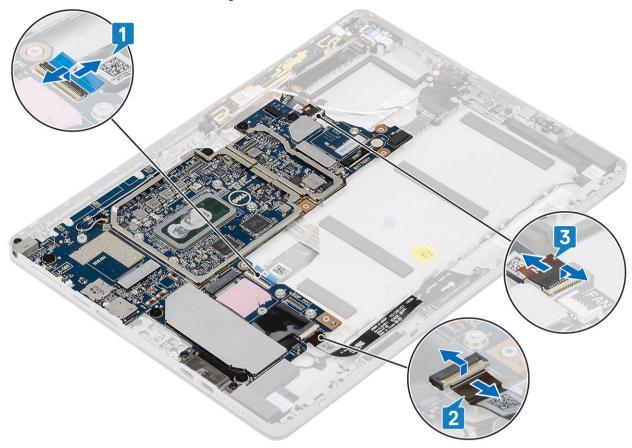
6　Fix the SD Memory Card, Display Panel Assembly, Battery, and Thermal Assembly.

System Board

Removing system board
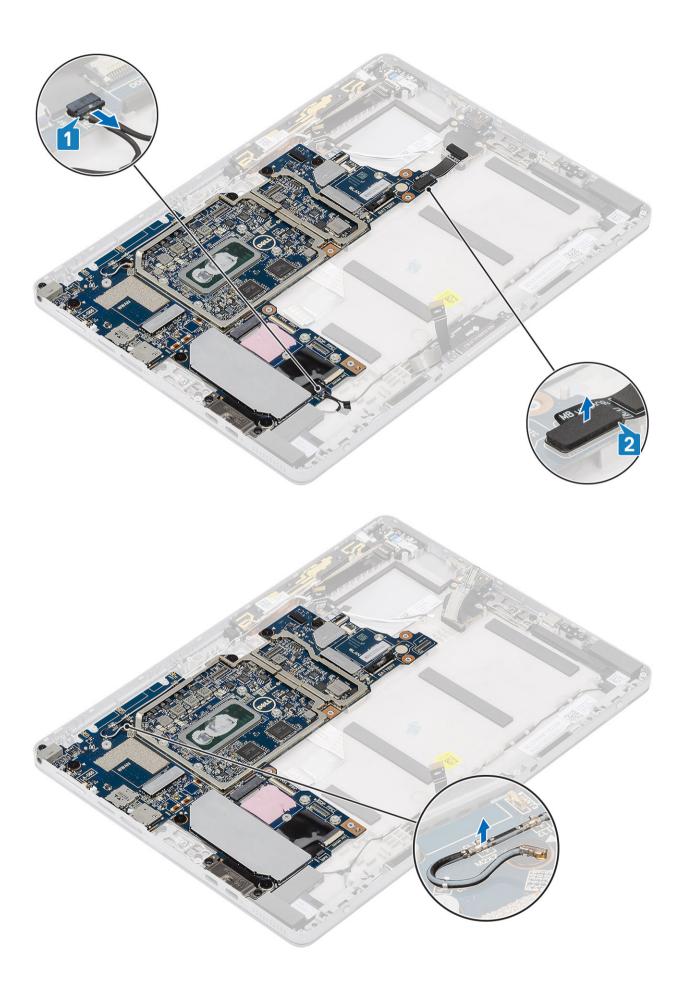
1　Follow the procedure in Before working inside your tablet.
2　Remove the SD Memory Card, SIM Card Tray or Dummy SIM Card Tray (for models shipped with a WWAN card), Display Panel Assembly, Battery, M.2 2230 SSD, Wireless Card, WWAN card (for models shipped with a WWAN card), Front-Facing Camera, Infrared Camera (for models shipped with an Infrared Camera), Rear-Facing Camera, Microphone Module-A, Microphone Module-B, Thermal Assembly, Dummy WWAN Main Antenna Module, and WWAN Main Antenna Module (for models shipped with a WWAN card).
3　Disconnect the following cables from the system board .

a Push the release latch of on the SIM card cage inward to release the
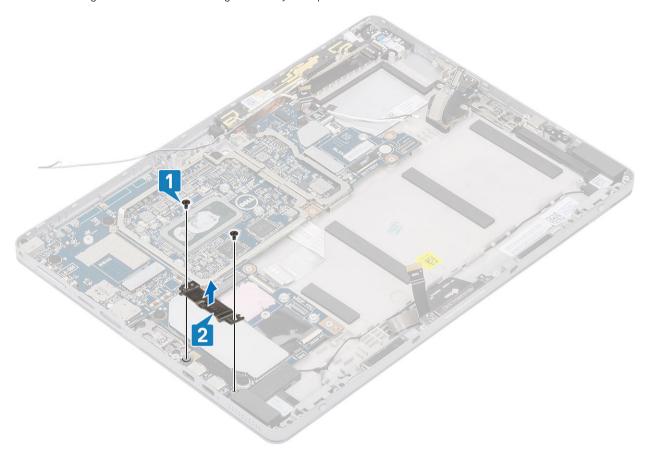
dummy SIM card tray.
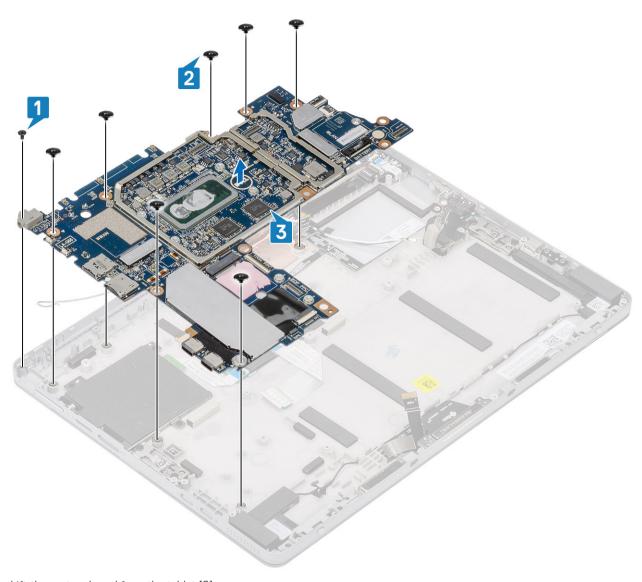
b Remove the dummy SIM card tray.

c Disconnect the power button daughter board FPC, USB daughter board FPC, USH FFC (that are shipped with a USH module), docking connector FPC, and a speaker cable.

4 Un-route the antenna cables from the routing clips .

5   To remove the system board
   a   Remove the two bracket M2 x 2.5 screws securing the Type-C USB bracket in place.
   b   Remove the Type-C USB bracket.
   c   Remove the single M2 x 2.5 screw securing the audio jack in place.

   d   Remove the seven M2 x 2.5 screws securing the system board in place
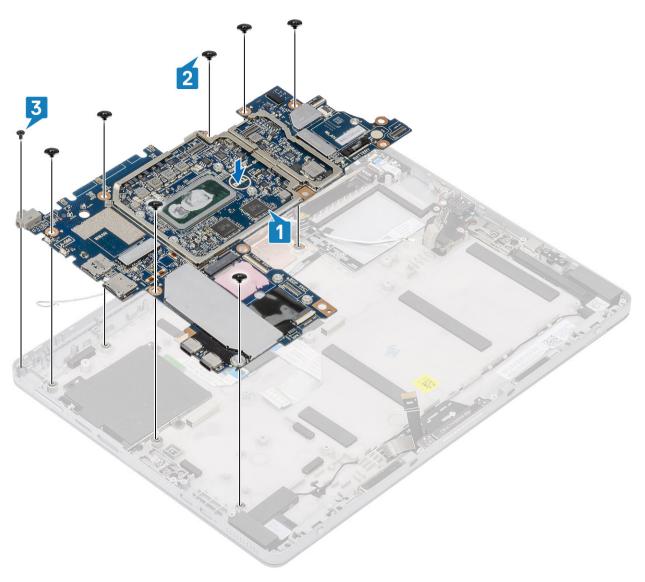
e   Lift the system board from the tablet [2].
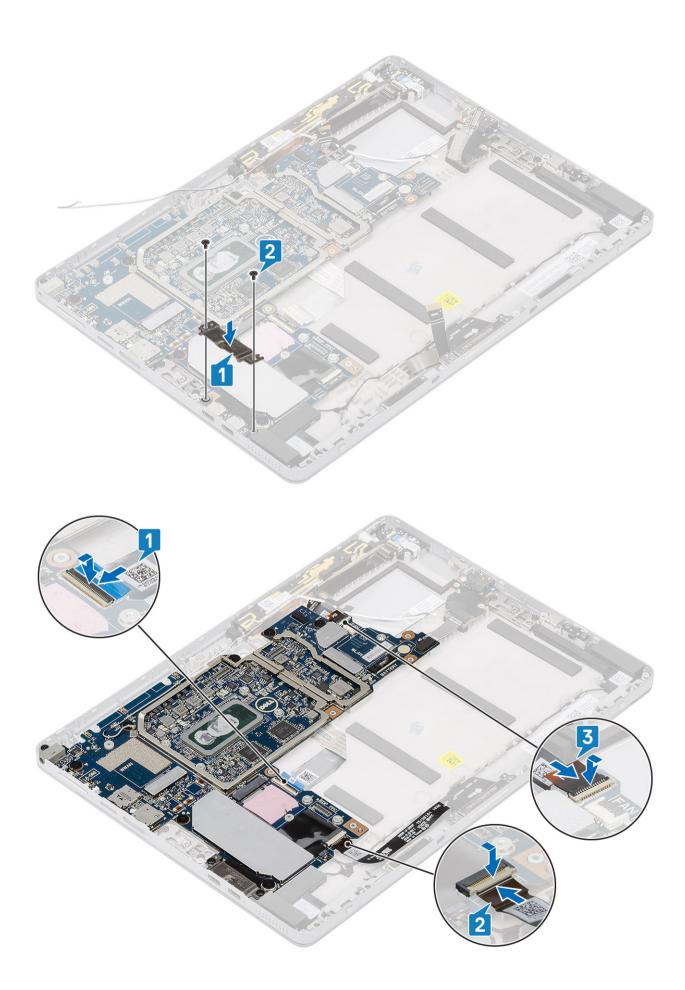
Installing system board

1   Align the system board with the screw holders on the tablet.
2   Tighten the seven M2 x 2.5 screws to secure the system board to the tablet.

        ⓘ NOTE: **Remember to align the Type-C port and tighten the two screws to secure the port to the system chassis.**

3   Tighten the single M2 x 2.5 screw securing the audio jack in place and place the USB Type-C bracket.

4   Tighten the two bracket M2 x 2.5 screws securing the Type-C USB bracket in place.

5   Remove the SD Memory Card, SIM Card Tray or Dummy SIM Card Tray (for models shipped with a WWAN card), Display Panel Assembly, Battery, M.2 2230 SSD, Wireless Card, WWAN card (for models shipped with a WWAN card), Front-Facing Camera, Infrared Camera (for models shipped with an Infrared Camera), Rear-Facing Camera, Microphone Module-A, Microphone Module-B, Thermal Assembly, Dummy WWAN Main Antenna Module, and WWAN Main Antenna Module (for models shipped with a WWAN card).

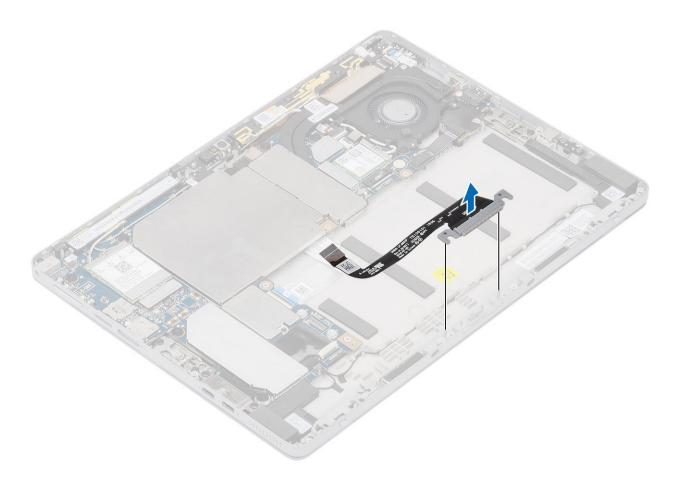6   Follow the procedure in After working inside your tablet.

System Board

Removing I/O board

1   Follow the procedure in Before working inside your tablet.
2   Remove the SD Memory Card and display panel.
3   Remove the cable from the system board, and peel off the adhesive tape to remove the I/O board
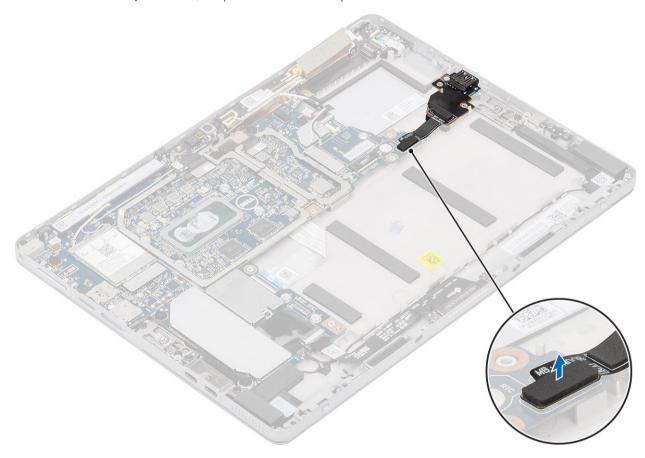
Figure 12. Removing the cable
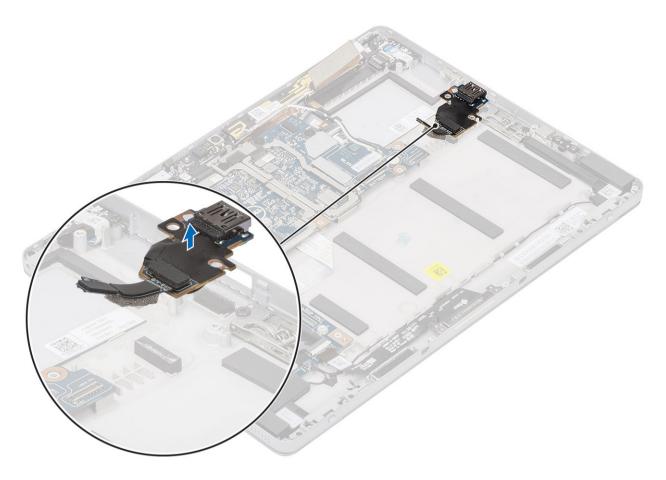
Figure 13. Peel off the adhesive tape

Installing I/O board

1   Follow the procedure in Before working inside your tablet.
2   Remove the SD Memory Card and display panel.
3   Fix the adhesive tape and Install the cable with the I/O board to the system board.
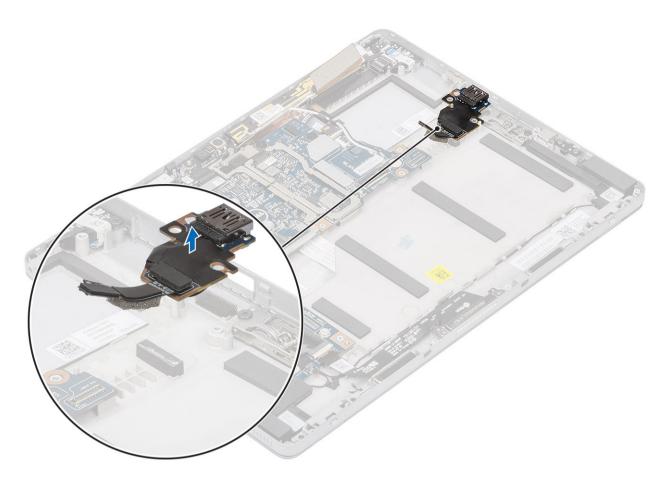
Figure 14. Fix the adhesive tape
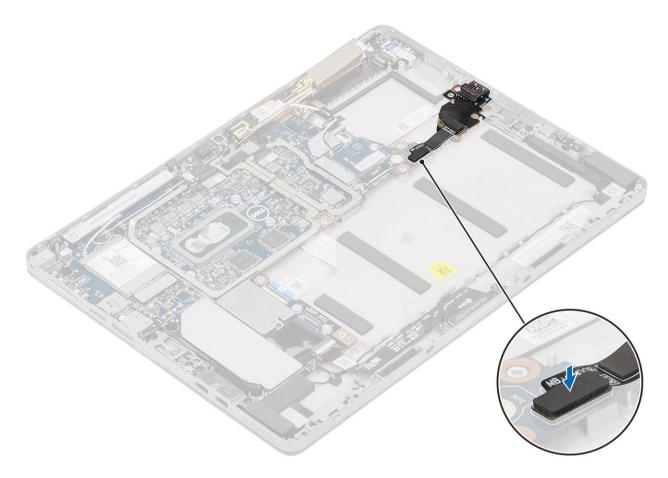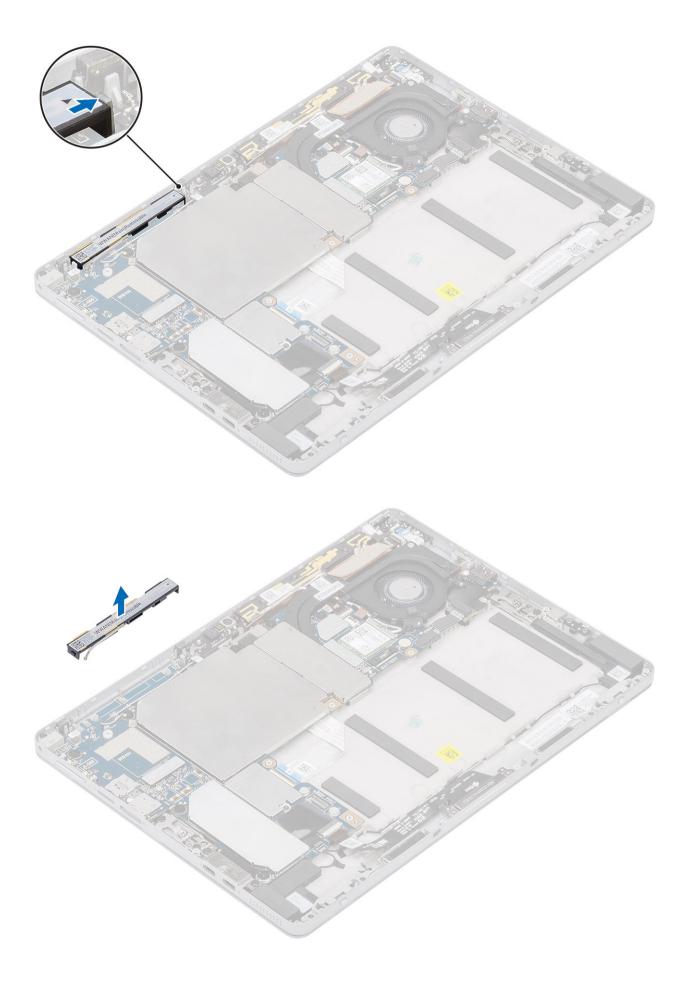
Figure 15. Fix the I/O module

Antenna
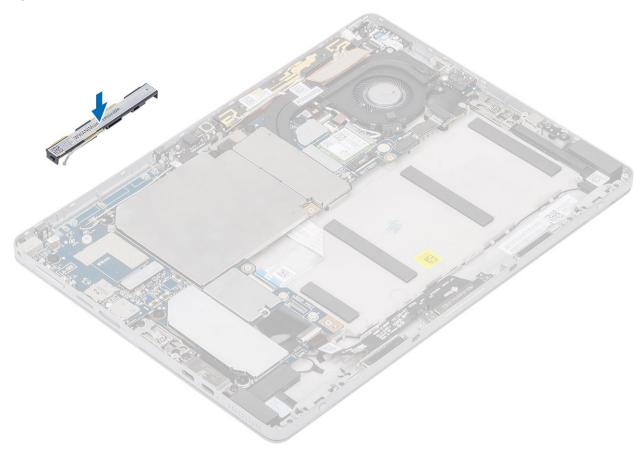
Removing the antenna module
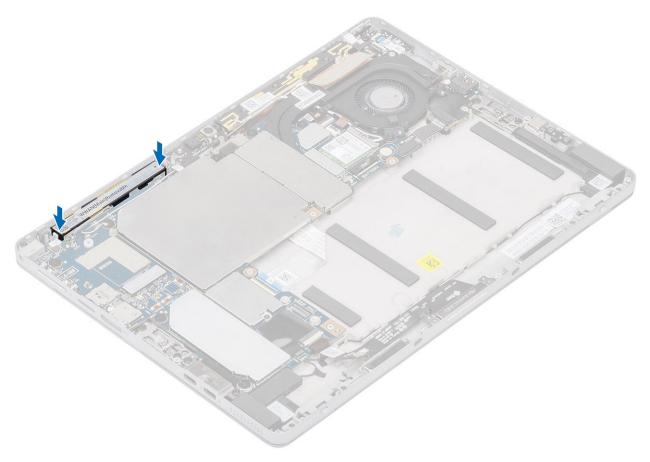
1   Follow the procedure in Before working inside your tablet.
2   Remove:
    a   SD memory card.
    b   Display panel
3   To remove the antenna module:
    a   Unthread the WWAN main antenna from the system board.
    b   Release the clips on the left and right side of the WWAN main antenna module securing it to the system
    c   Flip over the WWAN main antenna module to release it from the system board.
    d   Remove the WWAN main antenna module from the system.

      ⓘ **NOTE: The same procedure must be followed to remove the dummy WWAN main antenna module from the system.**

Installing the antenna module

1   Insert the antenna module into the slot on the back cover of the tablet.

2   Flip over the WWAN main antenna module to fix it to the system board..

3   Tighten the clips on the left and right side of the WWAN main antenna module securing it to the system.

4   Thread the WWAN main antenna to the system board.

5   Install the:

    a   Display panel

    b   SD memory card.

6   Follow the procedure in After working inside your tablet.

Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

Downloading Windows drivers

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

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

4 Click **Drivers and Downloads**.
5 Select the operating system installed on your tabletdesktopnotebook.
6 Scroll down the page and select the driver to install.
7 Click **Download File** to download the driver for your tabletdesktopnotebook.
8 After the download is complete, navigate to the folder where you saved the driver file.
9 Double-click the driver file icon and follow the instructions on the screen.

System setup

System setup enables you to manage your tabletdesktopnotebook hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Topics:

Entering BIOS without keyboard

1. Press the power button to turn on your tablet.
2. Press and hold the **Volume Up** button when the Dell logo appears on the screen.
3. When the **F12** boot selection menu appears, select **BIOS Setup** using the **Volume Up** button.
4. Press the **Volume Down** button to enter BIOS setup program.

System setup options

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

General screen options

This section lists the primary hardware features of your computer.

Option	Description
System Information	 - System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code. - Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A Size, DIMM B Size. - Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit technology.

Option	Description
	• Device Information: Displays Primary Hard Drive, MiniCard Device, ODD Device, Dock eSATA Device, LOM MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Wi-Fi Device, WiGig Device, Cellular Device, Bluetooth Device.
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.

Boot Sequence

	Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. The options are:
		• Windows Boot Manager
		By default, the options is checked.
	Boot List Options	Allows you to change the boot list option:
		• Legacy
		• UEFI (The option is enabled by default)

Option	Description
Advanced Boot Options	Allows you the legacy option ROMs to load. By default, all the option are disabled. • **Enable Legacy Option ROMs** • **Enable Attempt Legacy Boot**
UEFI Boot Path SecurityOptions	Allows you to control whether or not the system will prompt to the user to enter the Admin password, when a user selects a UEFI boot path from the F12 boot Menu. • **Always, Except Internal HDD**. This option is enabled by default. • **Always** • **Never** ⓘ NOTE: **These options have no relevance if the Admin password is not set BIOS settings.**
Date/Time	Allows you to change the date and time.

System Configuration screen options

Option	Description
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self-Monitoring Analysis and Reporting Technology) specification. This option is disabled by default. • Enable SMART Reporting
USB Configuration	This is an optional feature. This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices—HDD, memory key, floppy. If USB port is enabled, device attached to this port is enabled and available for OS. If USB port is disabled, the OS cannot see any device attached to this port.

Option	Description
	The options are:

- Enable USB Boot Support—enabled by default
- Enable External USB Port—enabled by default
- Always Allow dell docks—enabled by default

ⓘ **NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.**

Option	Description
USB PowerShare	This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port. This option is disabled by default
Audio	This field enables or disables the integrated audio controller. By default, the **Enable Audio** option is selected. The options are:

- Enable Microphone—enabled by default
- Enable Internal Speaker—enabled by default

Option	Description
Keyboard Illumination	This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are:

- Disabled—enabled by default
- Dim (50%)
- Bright

Option	Description
Keyboard Backlight Timeout on Battery	The Keyboard Backlight Timeout dims out with the Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:

- 5 sec
- 10 sec—enabled by default
- 15 sec
- 30 sec
- 1 min
- 5 min
- 15 min
- Never

Option	Description
Keyboard Backlight with AC	The Keyboard Backlight with AC option does not affect the main keyboard illumination feature. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. This option is enabled by default.
Keyboard Backlight Timeout on AC	The Keyboard Backlight Timeout dims out with AC option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:

- 5 sec
- 10 sec—enabled by default
- 15 sec
- 30 sec
- 1 min
- 5 min
- 15 min
- Never

Option	Description
Unobtrusive Mode	This option, when enabled, pressing **Fn+F7** turns off all light and sound emissions in the system. To resume normal operation, press **Fn+F7** again. This option is disabled by default.

Miscellaneous Devices

Allows you to enable or disable the following devices:

- Enable Front Camera—enabled by default
- Enable Back Camera—enabled by default
- Secure Digital (SD) card—enabled by default
- Secure Digital (SD) card boot
- Secure Digital (SD) card read-only-mode

System Configuration screen options

Option	Description
Integrated NIC	Allows you to controls the on-board LAN controller. The options are:

- **Disabled**The internal LAN in off and not visible to the operating system.
- **Enabled**The internal LAN is enabled.
- **Enabled w/PXE**The internal LAN is enabled (with PXE boot). This option is enabled by default.

Drives

Allows you to configure the various drives on board. All drives are enabled by default. The option is:

- **M.2 2230 PCI-e SSD**

SMART Reporting

This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification. This option is disabled by default.

- **Enable SMART Reporting**

USB Configuration

This is an optional feature.

This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy).
If USB port is enabled, device attached to this port is enabled and available for OS.

If USB port is disabled, the OS cannot see any device attached to this port.

The options are:

- **Enable USB Boot Support**
- **Enable External USB Port**

ⓘ NOTE: Both the option is enabled by default.

Dell Type-C dock configuration

Allows you to enable docks. The options are:

- **Always Allow Dell Docks**This option is enabled by default.
- When set to enabled, allows connection to the Dell WD and TB family of docks (Type-C docks) independent of USB and Thunderbolt Adapter configuration settings.
- When set to disabled, the docks will be controlled via the USB and Thunderbolt Adapter configuration settings.

Option	Description
Thunderbolt Adapter configuration:	Allows you to configure the Thunderbolt™ adapter security settings within the Operating System. ⓘ **NOTE: Security Levels are not applicable or enforced in the Pre-boot environment.** The options are: · **Enable Thunderbolt™ Technology Support** This option is enabled by default. · **Enable Thunderbolt™ Adapter Boot Support** · **Enable Thunderbolt™ Adapter Pre-boot Modules** · **Security level - No Security** · **Security level - User Authorization** This option is enabled by default. · **Security level - Secure Correct** · **Security level - Display Port only**
USB PowerShare	Allows you to charge external devices using the stored system battery power through the USB PowerShare port. This field can also configure the USB PowerShare feature behavior. By default, the **Enable USB PowerShare** is disabled.
Audio	Allows you to enable or disable the integrated audio controller. By default, the **Enable Audio** option is selected. The options are: · **Enable Microphone** This option is enabled by default. · **Enable Internal Speaker** This option is enabled by default.
Keyboard Illumination	Allows you to choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are: · **Disabled** · **Dim** · **Bright** This option is enabled by default. ⓘ **NOTE: The <Fn+F10> hotkey can be used to change the setting.**
Keyboard Backlight Timeout on AC	Allows you to define the time-out value for the keyboard Backlight when an AC adapter is plugged into the system. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are: · **5 seconds** · **10 seconds** This option is enabled by default. · **15 seconds** · **30 seconds** · **1 minute** · **5 minute** · **15 minute** · **never**
Keyboard Backlight Time-out on Battery	Allows you to define the Keyboard Backlight Time-out dims out with Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are: · **5 seconds** · **10 seconds** This option is enabled by default. · **15 seconds** · **30 seconds**

Option	Description
	· **1 minute**
	· **5 minute**
	· **15 minute**
	· **never**
Touchscreen	Allows you to controls whether the touchscreen is enabled or disabled. By default, the option is enabled.
Unobtrusive Mode	Allows you to select the option. When enabled, pressing Fn+F7 turns off all light and sound emissions in the system. To resume normal operation, press Fn+F7 again. This option is disabled by default.
Miscellaneous Devices	Allows you to enable or disable various on board devices:
	· **Enable Camera** This option is enabled by default.
	· **Enable Secure Digital(SD) Card**This option is enabled by default.
	· **Secure Digital(SD) Card read only mode**
	· **Secure Digital(SD) Card Read-Only Mode**

Video screen options

Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

ⓘ NOTE: **The video setting will be visible only when a video card is installed into the system.**

Security screen options

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password.
	ⓘ NOTE: **You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password.**
	ⓘ NOTE: **Password changes take effect immediately.**
	By default, the drive will not have a password set.
System Password	Allows you to set, change or delete the system password.
	ⓘ NOTE: **Password changes take effect immediately.**
	By default, the drive will not have a password set.
M.2 SATA SSD-2 Password	Allows you to set, change, or delete the password on the system's M.2 SATA solid state drive(SSD).
	ⓘ NOTE: **Password changes take effect immediately.**
	By default, the drive will not have a password set.
Strong Password	Allows you to enforce the option to always set strong passwords.
	Default Setting: Enable Strong Password is not selected.

Option	Description
	(i) **NOTE: If user interface is enabled, Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.**
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Password Bypass	Allows you to disable or enable the permission to bypass the System and the Internal hard drive password, when they are set. The options are:

- **Disabled**. This option is selected by default.
- **Reboot bypass**

Password Change	Allows you to enable or disable permission to the System and Hard Drive passwords when the admin password is set. **Allow Non-Admin Password Changes** This option is selected by default.
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an administrator password is set. If disabled the setup options are locked by the admin password.
UEFI Capsule Firmware Updates	This option controls whether the system allows BIOS updates via UEFI capsule update packages. **Enable UEFI Capsule Firmware Updates** option is selected by default. (i) **NOTE: Disabling this option will block BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS).**
TPM 2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. You can control whether the trusted platform module is visible to the operating system. The option is:

- **TPM on** This option is selected by default.
- **Clear**
- **PPI Bypass for Enable Commands** This option is selected by default.
- **Attestation Enable**. This option is selected by default.
- **PPI Bypass for Disable Commands**
- **Key Storage Enable**. This option is selected by default.
- **SHA-256**. This option is selected by default.

⚠ **CAUTION: For the TPM upgrade/downgrade process, it is recommended to complete the process in an AC power with AC adapter plugged into the computer. The upgrade/downgrade process without the AC adapter plugged in might damage the computer or hard disk.**

(i) **NOTE: Disabling this option does not change any settings you have made to the TPM, nor does it delete or change any information or keys you may have stored in the TPM. Changes to this setting take effect immediately.**

Computrace (R)	Allows you to activate or disable the optional Computrace Service from Absolute software. The options are:

- Deactivate
- Disable
- Activate

(i) **NOTE: The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed**

Default setting: Activate

Option	Description
OROM Keyboard Access	Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are:
	• **Enabled**. This option is selected by default.
	• **One Time Enable**
	• **Disabled**
	Default setting: Enable
Admin Setup Lockout	Allows you to prevent users from entering the setup when an Administrator password is set.
	Enable Admin Setup Lockout This option is not selected by default.
Master Password Lockout	Allows you to prevent users from entering the setup when an Master password is set. Hard disk passwords need to be cleared before the setting can be changed.
	Enable Master Password Lockout This option is not selected by default.
SSM Security Mitigation	Allows you to enable or disable additional UEFI SMM Security Mitigation protections. The OS can use the feature to help protect the secure environment created by virtualization based security.
	SSM Security Mitigation This option is disabled by default.

Secure Boot

Option	Description
Secure Boot Enable	This option enables or disables the **Secure Boot** feature.
	• Disabled
	• Enabled
	Default setting: Enabled.
Expert Key Management	Allows you to manipulate the security key databases only if the system is in Custom Mode. The **Enable Custom Mode** option is disabled by default.
Custom Mode Key Management	Allows you to manage the security key databases only if the system is in Custom Mode .The options are:
	• **PK**. This option is selected by default.
	• **KEK**
	• **db**
	• **dbx**
	ⓘ NOTE: If you disable the Enable Custom Mode, all the changes made will be erased and the keys will restore to default settings. Save to File will save the key to a user-selected file.

Intel software Guard Extensions

Option	Description
Intel SGX Enable	This option enables or disables to provide a secured environment for running code/storing sensitive information in the context of the main OS. The options are:

Option	Description
	· **Disabled**
	· **Enabled**
	· **Software Controlled**.This option is selected by default.
Enclave Memory Size	Allows you to reserve the memory size. The memory size can be set from 32 MB to 128 MB, these options are disabled by default. The options are:
	· **32 MB**
	· **64 MB**
	· **128 MB**

Performance screen options

Option	Description
Multi Core Support	This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor.
	· **All**This option is enabled by default.
	· **1**
	· **2**
	· **3**
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of the processor.
	· **Enable Intel SpeedStep**
	Default setting: The option is enabled.
C-States Control	Allows you to enable or disable the additional processor sleep states.
	· **C states**
	Default setting: The option is enabled.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor.
	· **Enable Intel TurboBoost**
	Default setting: The option is enabled.
HyperThread Control	Allows you to enable or disable the HyperThreading in the processor.
	· **Disabled**
	· **Enabled**This option is enabled by default.

Power Management screen options

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. **Wake on AC** This option is disabled by default.
Enable Intel Speed Shift Technology	Allows you to enable or disable the Intel speed Shift Technology support. Setting to enable option, allows the operating system to automatically select the required processor performance. **Enable Intel Speed Shift Technology** This option is enabled by default.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • **Disabled** This option is enabled by default. • **Every Day** • **Weekdays** • **Select Days**
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. (i) **NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup removes power from all the USB ports to conserve battery power.** • **Enable USB Wake Suppor**t • **Wake on Dell USB-C Dock** The option is selected by default.
Wireless Radio Control	Allows you to sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WLAN and/or WWAN) Upon disconnection from the wired network, the selected wireless radios is re-enabled. By default none of the option is enabled. The options are: • **Control WLAN radio** • **Control WWAN radio**
Wake on WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. • **Disabled** This option is selected by default. • **LAN Only** • **WLAN Only** • **LAN or WLAN**
Block Sleep	Allows you to block entering to sleep (S3 state) in OS environment. When enabled system wont go to sleep. Intel Rapid Start will be disabled automatically and OS Power option will be blank if it was set to Sleep (S3 state) . Block Sleep (S3 State) option is **disabled** by default.
Peak Shift	Allows you to minimize the AC power consumption during the peak power times of day. After you enable this option, your system runs only in battery even if the AC is attached. • **Enable Peak Shift**This option is not selected by default.

Option	Description
Advanced Battery Charge Configuration	This option enables you to maximize the battery health. By enabling this option, your system uses the standard charging algorithm and other techniques, during the non-work hours to improve the battery health. • **Enable Advanced Battery Charge Mode**This option is not selected by default.
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: • **Adaptive** This option is enabled by default. • **Standard** Fully charges your battery at a standard rate. • **ExpressCharge** The battery charges over a shorter period of time using Dell's fast charging technology. • **Primarily AC use** • **Custom** If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop. ⓘ NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.
Type-C Connector Power	Allows you to set the maximum power the computer can drawn from the Type-C connectors. The options are: **7.5 Watts** **15 Watts**This option is enabled by default.

POST Behavior

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. **Enable Adapter Warnings** This option is selected by default.
Keypad (Embedded)	Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard. • **Fn Key Only** This option is enabled by default. • **By Numlock** ⓘ NOTE: When setup is running, this option has no effect. Setup works in Fn Key Only mode.
Numlock Enable	Allows you to enable the Numlock option when the computer boots. • **Enable Network** This option is enabled by default.
Fn Key Emulation	Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature. • **Enable Fn Key Emulation** This option is enabled by default.
Fn Lock Options	Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1 – F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys. The available options are: • **Fn Lock** This option is enabled by default. • **Lock Mode Disable/Standard** This option is selected by default.

Option	Description
	· **Lock Mode Enable/Secondary**
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: · **Minimal** This option is selected by default. · **Thorough** · **Auto**
Extended BIOS POST Time	Allows you to create an additional pre-boot delay. The options are: · **0 seconds** This option is enabled by default. · **5 seconds** · **10 seconds**
Full Screen Logo	Allows you display full screen logo if your image match screen resolution. The options are: · **Enable Full Screen Logo** This option is disabled by default.
Warnings and Errors	Allows you to select in the BIOS setup options that cause the boot process to pause only, when warnings or errors are detected rather than stop, prompt and wait for user input. The options are: **Prompt on Warnings and Errors**. This option is enabled by default. **Continue on Warnings** **Continue on Warnings and Errors**

Virtualization Support options

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. **Enable Intel Virtualization Technology** This option is selected by default.
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. **Enable VT for Direct I/O** This option is selected by default.
Trusted Execution	This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM Virtualization Technology, and Virtualization technology for direct I/O must be enabled to use this feature. **Trusted Execution** This option is disabled by default.

Wireless screen options

Option	Description
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. · WWAN/GPS

Option	Description
	· WLAN/WiGig
	· Bluetooth
	All the options are enabled by default.

ⓘ **NOTE: IMEI number for WWAN can be found on the outer box or the WWAN card.**

Maintenance

Option	Description
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
BIOS Downgrade	Allows you to control flashing of the system firmware to previous revisions. The option are: **Allows BIOS Downgrade** This option is enabled by default.
Data Wipe	Allows you to securely erase data from all internal storage devices. The process adheres to Serial ATA Security Erase and eMMC JEDEC Sanitize specifications. The option are: **Wipe on Next Boot** This option is disabled by default.
BIOS Recovery	Allows you to recover from certain computed BIOS conditions from a recovery file on the user primary hard drive or an external USB key. When 'Enabled' is selected BIOS stores the recovery file on the user primary hard drive.The option are: **BIOS Recovery from Hard Drive** This option is enabled by default. **BIOS Auto-Recovery** **Always Perform Integrity Check**

System logs screen options

Option	Description
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
Thermal Events	Allows you to view and clear the System Setup (Thermal) events.
Power Events	Allows you to view and clear the System Setup (Power) events.

System Log

Option	Description
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
Thermal Events	Allows you to view and clear the System Setup (Thermal) events.
Power Events	Allows you to view and clear the System Setup (Power) events.

Updating the BIOS

Prerequisite

It is recommended to update your BIOS (System setup) on replacing the system board or if an update is available. Ensure that your tabletnotebookdesktop battery is fully charged and connected to a power outlet.

Steps

1   Restart the tabletnotebookdesktop.

2   Go to **Dell.com/support**.

3   Enter the **Service Tag** or **Express Service Code** and click **Submit**.

> ⓘ NOTE: To locate the Service Tag, click Where is my Service Tag?

> ⓘ NOTE: If you cannot find your Service Tag, click Detect My Product. Proceed with the instructions on screen.

4   If you are unable to locate or find the Service Tag, click the Product Category of your tabletnotebookdesktop.

5   Choose the **Product Type** from the list.

6   Select your tabletnotebookdesktop model and the **Product Support** page of your tabletnotebookdesktop appears.

7   Click **Get drivers** and click **View All Drivers**.

The Drivers and Downloads page opens.

8   On the Drivers and Downloads screen, under the **Operating System** drop-down list, select **BIOS**.

9   Identify the latest BIOS file and click **Download File**.

You can also analyze which drivers need an update. To do this for your product, click **Analyze System for Updates** and follow the instructions on the screen.

10   Select your preferred download method in the **Please select your download method below** window, click **Download File**.

The **File Download** window appears.

11   Click **Save** to save the file on your tabletnotebookdesktop.

12   Click **Run** to install the updated BIOS settings on your tabletnotebookdesktop.

Follow the instructions on the screen.

Next step

> ⓘ NOTE: It is recommended not to update the BIOS version for more than 3 revisions. For example: If you want to update the BIOS from 1.0 to 7.0, then install version 4.0 first and then install version 7.0.

Updating your system BIOS using a USB flash drive

About this task

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

> ⓘ NOTE: You will need to use a bootable USB Flash drive. Please refer to the following article for further details: https://www.dell.com/support/article/us/en/19/sln143196/

Steps

1   Download the BIOS update .EXE file to another system.

2   Copy the file e.g. O9010A12.EXE onto the bootable USB Flash drive.

3   Insert the USB Flash drive into the system that requires the BIOS update.

4   Restart the system and press F12 when the Dell Splash logo appears to display the One Time Boot Menu.

5   Using arrow keys, select **USB Storage Device** and click Return.

6   The system will boot to a Diag C:\> prompt.

7   Run the file by typing the full filename e.g. O9010A12.exe and press Return.

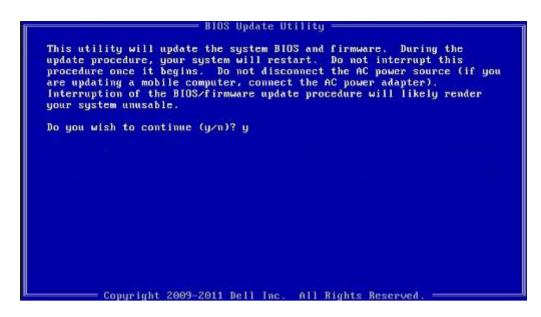8   The BIOS Update Utility will load, follow the instructions on screen.

Figure 16. DOS BIOS Update Screen

System and setup password

Table 1. System and setup password

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

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

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

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

ⓘ NOTE: System and setup password feature is disabled.

Assigning a system setup password

Prerequisite

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

About this task

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

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.

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

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

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

5 Press Y to save the changes.

The computer reboots.

Deleting or changing an existing system setup password

Prerequisite

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 F2 immediately after a power-on or reboot.

Steps

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

The **System Security** screen is displayed.

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

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

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

> ⓘ NOTE: If you change the System and/or Setup password, re-enter the new password when prompted. If you delete the System and/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 reboot.

Troubleshooting

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

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

For more information, see Dell EPSA Diagnostic 3.0.

Running the ePSA diagnostics

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

System diagnostic lights

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.

The power and battery-status light blinks amber along with beep codes indicating failures.

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

The following table shows different power and battery-status light patterns and associated problems.

Table 2. LED codes

Diagnostic light codes	Problem description
2,1	Processor failure
2,2	System board: BIOS or ROM (Read-Only Memory) failure
2,3	No memory or RAM (Random-Access Memory) detected
2,4	Memory or RAM (Random-Access Memory) failure
2,5	Invalid memory installed
2,6	System-board or chipset error
2,7	Display failure
3,1	Coin-cell battery failure
3,2	PCI, video card/chip failure
3,3	Recovery image not found
3,4	Recovery image found but invalid
3,5	Power-rail failure
3,6	System BIOS Flash incomplete
3,7	Management Engine (ME) error

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.

Flashing BIOS (USB key)

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

Flashing the BIOS

About this task

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

Follow these steps to flash the BIOS:

Steps

1 Turn on your computer.

2 Go to www.dell.com/support.

3 Click **Product support**, enter the Service Tag of your computer, and then click **Submit**.

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

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

5 Select the operating system installed on your computer.

6 Scroll down the page and expand **BIOS**.

7 Click **Download** to download the latest version of the BIOS for your computer.

8 After the download is complete, navigate to the folder where you saved the BIOS update file.

9 Double-click the BIOS update file icon and follow the instructions on the screen.

Backup media and recovery options

Dell proposes multiple options for recovering Windows operating system on your Dell PC. For more information. see Dell Windows Backup Media and Recovery Options.

WiFi power cycle

About this task

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

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

Steps

1 Turn off your computer.

2 Turn off the modem.

3 Turn off the wireless router.

4 Wait for 30 seconds.

5 Turn on the wireless router.

6 Turn on the modem.

7 Turn on your computer.

Flea power release

About this task

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

Steps

1 Turn off your computer.

2 Disconnect the power adapter from your computer.

3 Press and hold the power button for 15 seconds to drain the flea power.

4 Connect the power adapter to your computer.

5 Turn on your computer.

Getting help

Contacting Dell

Prerequisite

ⓘ **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.**

About this task
Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

Steps
1 Go to **Dell.com/support.**
2 Select your support category.
3 Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4 Select the appropriate service or support link based on your need.