

Dell Latitude 7410 Chromebook Enterprise

Service Manual

1



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

Topics:

- [Safety instructions](#)

Safety instructions

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that you have read the safety information that shipped with your computer.

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

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

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

 **CAUTION:** To avoid damaging the components and cards, handle them by their edges, and avoid touching the pins and the contacts.

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

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

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

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

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

Working inside your computer

Before working inside your computer

About this task

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

Steps

1. Save and close all open files and exit all open applications.
2. Shut down your computer. Click **Start** >  **Power** > **Shut down**.



NOTE: If you are using a different operating system, see the documentation of your operating system for shut-down instructions.

3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.



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

5. Remove any media card and optical disc from your computer, if applicable.

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.

After working inside your computer

About this task

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

Steps

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

Technology and components

This chapter details the technology and components available in the system.

Topics:

- [Display and Stylus Behaviour](#)
- [Keyboard shortcuts](#)
- [USB Type-C](#)
- [USB features](#)

Display and Stylus Behaviour

Touch Screen Behavior

Table 1. Touch Screen Behavior

User Action	Description
Long swipe up from the bottom	Go to your Home Screen
Short swipe up from the bottom	Show your pinned apps
Swipe up from the bottom and hold	View all open app windows
From overview, hold and drag a window to one side	Split your screen
Swipe from the left side	Go back to previous screen

Stylus Behavior

Table 2. Stylus Behavior

User Action	Description
Positioning	To position the screen cursor, move the Pen slightly above the Dell screen without touching the screen surface. To make a selection, press the Pen tip on the display screen.
Clicking	Tap the display screen once with the Pen tip, or touch the Pen to the screen with enough pressure to register a click.
Dragging	Select an object, then slide the Pen tip across the screen to move the object.
Erasing	Press and hold the bottom barrel button and move the tip over the area you want to erase.
Context Menu / Right click	Press and hold the top barrel button to open the context menu or perform a right-click.
New note	Double-click the top button to launch "New Note"
Working with pressure sensitivity	To draw, ink, or write with pressure sensitivity, move the Pen along the display screen surface while applying various amounts of pressure downward on the tip of the Pen. Press hard for thick lines or dense color. Press gently for thin lines or softer color.
Drawing with Tilt	Tilt can be used to control line shape and thickness in any application that supports this feature.

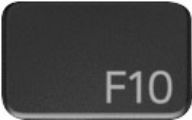
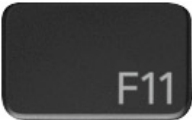
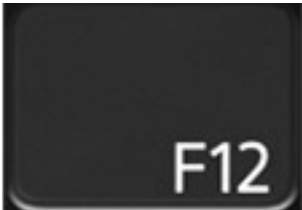
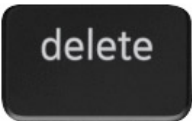
Keyboard shortcuts

NOTE: Keyboard characters may differ depending on the keyboard language configuration. Keys used for shortcuts remain the same across all language configurations.

Table 3. List of keyboard shortcuts

Keys	Primary behavior	Secondary behavior (Fn+Key)
	Esc behavior	Esc behavior
	Browser Back	F1 behavior
	Reload current page	F2 behavior
	Open your page in fullscreen mode	F3 behavior
	Switch to your next tab or window	F4 behavior
	Decrease screen brightness	F5 behavior
	Increase screen brightness	F6 behavior
	Mute	F7 behavior
	Decrease the volume	F8 behavior
	Increase the volume	F9 behavior

Table 3. List of keyboard shortcuts (continued)

Keys	Primary behavior	Secondary behavior (Fn+Key)
	F10 behavior	F10 behavior
	F11	F11
	F12 behavior	F12 behavior
	Changes display layout (multi monitors setup)	None
	Delete	None
	Globe/ Language Key	Globe/ Language Key

Keyboard shortcut keys

Table 4. Shortcut keys

Shortcut keys	
Shortcut	Function
Esc	Stop the loading of your current page
Ctrl + F5	Decrease keyboard brightness
Ctrl + F6	Increase keyboard brightness
Alt + Up arrow	Page up
Alt + Down arrow	Page down
Alt + Left arrow (Backspace)	Go to previous page in your browsing history
Alt + Right arrow (Shift + Backspace)	Go to the next page in your browsing history
Ctrl + Right arrow	Move to the end of the next word
Ctrl + Down arrow	Move to the start of the previous word

Table 4. Shortcut keys (continued)

Shortcut keys	
Shortcut	Function
Ctrl + Alt + Up arrow	Home
Ctrl + Alt + Down arrow	End
Ctrl + Alt + Right arrow	Select next word or letter
Ctrl + Alt + Left arrow	Select previous word or letter
Ctrl + Alt + Z	Enable or disable accessibility features if you're not signed in with a Google Account. If you're signed in, you can configure the accessibility feature on the Settings page.
Ctrl + Alt + /	Open the list of available keyboard shortcuts
Ctrl + Shift + D	Save all open pages in the current window as bookmarks in a new folder
Ctrl + Shift + G or Shift + Enter	Go to the previous match for the input in the find bar
Ctrl + Shift + B	Toggle the display of the bookmarks bar. Bookmarks appear on the New Tab page if the bar is hidden.
Ctrl + Shift + I	Toggle the display of the Developer Tools panel
Ctrl + Shift + J	Toggle the display of the DOM Inspector
Ctrl + Shift + L	Locks the screen
Ctrl + Shift + N	Open a new window in incognito mode
Ctrl + Shift + B	Toggle the bookmark bar
Ctrl + Shift + Q	Sign out Google Account
Ctrl + Shift + Q (twice)	Sign out Google Account on Chrome OS
Ctrl + Shift + R	Reload your current page without using cached content
Ctrl + Shift + T	Reopen the last tab being closed. Google Chrome remembers the last 10 tabs being closed.
Ctrl + Shift + V	Paste content from the clipboard as plain text
Ctrl + Shift + W	Close the current window
Ctrl + .	Display hidden files in the Files app
Ctrl + ?	Go to the Help Center
Ctrl + 0	Reset zoom level
Ctrl + 1 through Ctrl + 8	Go to the tab at the specified position in the window
Ctrl + 9	Go to the last tab in the window
Ctrl + A	Select everything on the page
Ctrl + C	Copy selected content to the clipboard
Ctrl + D	Save your current webpage as a bookmark
Ctrl + F	Search your current webpage
Ctrl + G or Enter	Go to the next match for the input in the find bar
Ctrl + H	Open the History page
Ctrl + J	Open the Downloads page

Table 4. Shortcut keys (continued)

Shortcut keys	
Shortcut	Function
Ctrl + K or Ctrl + E	Perform a search. Type a search term after the question mark in the address bar and press Enter.
Ctrl + L or Alt + D	Select the content in the address bar
Ctrl + N	Open a new window
Ctrl + O	Open a file in the browser
Ctrl + P	Print your current page
Ctrl + R	Reload your current page
Ctrl + S	Save your current page
Ctrl + T	Open a new tab
Ctrl + U	View page source
Ctrl + V	Paste content from the clipboard
Ctrl + W	Close the current tab
Ctrl + X	Cut
Ctrl + Z	Undo the last action
Ctrl + Backspace	Delete the previous word
Ctrl + Tab	Switch to next tab
Ctrl + Enter	Add www. and .com to your input in the address bar and open the resulting URL
Ctrl + Shift + Tab	Go to the previous tab in the window
Ctrl + Shift + Refresh	Rotate screen 90 degrees
Ctrl + Shift +)	Reset screen scale
Ctrl + Shift + +	Increase screen scale
Ctrl + Shift + -	Decrease screen scale
Ctrl + Shift + Refresh	Rotate screen 90 degrees
Ctrl + +	Zoom in on the page
Ctrl + -	Zoom out on the page
Alt + click a link	Open the link you clicked in a new background tab
Alt + 1 through Alt + 8	Go to the window at the specified position
Alt + 9	Go to the last window open
Alt + E or Alt + F	Open the Chrome menu on the browser toolbar
Alt + Backspace	Delete the next letter (forward delete)
Alt + Tab	Go to the next window that have opened
Alt + Shift + Tab	Go to the previous window that have opened
Alt + Shift + M	Open the Files app
Alt + Shift + B	Place focus on the bookmarks bar. Use the actions listed for Shift + Alt + T to move the focus.
Shift + Alt + S	Opens the status area in the bottom-right corner of the screen

Table 4. Shortcut keys (continued)

Shortcut keys	
Shortcut	Function
Shift + Alt + L	Place focus on the launcher - Press Tab or the right arrow to focus on the next item in the toolbar - Press Shift+Tab or the left arrow to focus on the previous item in the toolbar - Press Space or Enter to activate buttons, including page actions and browser actions - Press Shift + Volume increase to open the context menu for the button (if available) - Press Esc to return focus to the page
Shift + Search + Volume Up	Open right-click menus for focused items
Shift + Esc	Open the Task Manager

To see more shortcuts, simply press Ctrl+Alt+?. To open the keyboard viewer on your screen.

Keyboard Function (Fn) behavior

Table 5. Function (Fn) key

Key	Primary Function	Secondary Function
F12	Toggles privacy display ON and OFF and displays the user mode. If the system does not support privacy mode, the function will be as per the operating system or application specific F12 default behavior.	Operating system or application specific F12 default behavior.
Project mode	Toggles between mirrored and extended display modes.	Null
Delete	Delete function	Null
Power Button	Changes the system power state	Null
Language Key 	Switches between the keyboard languages that the user has set. The language key is located between the Fn and left Alt key. You can activate the language key using the Ctrl + Shift + Space bar keys combination. <i>NOTE: The language key functionality will be active if more than one keyboard language is set.</i>	Null

To see more shortcuts, simply press Ctrl+Alt+?. To open the keyboard viewer on your screen.

USB Type-C

USB Type-C is a new, tiny physical connector. The connector itself can support various exciting new USB standards like USB 3.1 and USB power delivery (USB PD).

Alternate Mode

USB Type-C is a new connector standard that is very small. It is about a third the size of an old USB Type-A plug. This is a single connector standard that every device should be able to use. USB Type-C ports can support a variety of different protocols using “alternate modes,” which allows you to have adapters that can output HDMI, VGA, DisplayPort, or other types of connections from that single USB port

USB Power Delivery

The USB PD specification is also closely intertwined with USB Type-C. Currently, smartphones, tablets, and other mobile devices often use a USB connection to charge. A USB 2.0 connection provides up to 2.5 watts of power — that'll charge your phone, but that's about it. A laptop might require up to 60 watts, for example. The USB Power Delivery specification ups this power delivery to 100 watts. It's bi-directional, so a device can either send or receive power. And this power can be transferred at the same time the device is transmitting data across the connection.

This could spell the end of all those proprietary laptop charging cables, with everything charging via a standard USB connection. You could charge your laptop from one of those portable battery packs you charge your smartphones and other portable devices from today. You could plug your laptop into an external display connected to a power cable, and that external display would charge your laptop as you used it as an external display — all via the one little USB Type-C connection. To use this, the device and the cable have to support USB Power Delivery. Just having a USB Type-C connection doesn't necessarily mean they do.

USB Type-C and USB 3.1

USB 3.1 is a new USB standard. USB 3's theoretical bandwidth is 5 Gbps, while USB 3.1's is 10 Gbps. That's double the bandwidth, as fast as a first-generation Thunderbolt connector. USB Type-C isn't the same thing as USB 3.1. USB Type-C is just a connector shape, and the underlying technology could just be USB 2 or USB 3.0. In fact, Nokia's N1 Android tablet uses a USB Type-C connector, but underneath it's all USB 2.0 — not even USB 3.0. However, these technologies are closely related.

USB features

Universal Serial Bus, or USB, was introduced in 1996. It dramatically simplified the connection between host computers and peripheral devices like mice, keyboards, external drives, and printers.

Table 6. USB evolution

Type	Data Transfer Rate	Category	Introduction Year
USB 2.0	480 Mbps	High Speed	2000
USB 3.2 Gen 1	5 Gbps	Super-Speed	2010
USB 3.2 Gen 2	10 Gbps	Super-Speed	2013

USB 3.2 Gen 1 (Super-Speed USB)

For years, the USB 2.0 has been firmly entrenched as the de facto interface standard in the PC world with about 6 billion devices sold, and yet the need for more speed grows by ever faster computing hardware and ever greater bandwidth demands. The USB 3.2 Gen 1 finally has the answer to the consumer's demands with a theoretically 10 times faster than its predecessor. In a nutshell, USB 3.2 Gen 1 features are as follows:

- Higher transfer rates (up to 5 Gbps)
- Increased maximum bus power and increased device current draw to better accommodate power-hungry devices
- New power management features
- Full-duplex data transfers and support for new transfer types
- Backward USB 2.0 compatibility
- New connectors and cable

The topics below cover some of the most commonly asked questions regarding USB 3.2 Gen 1.

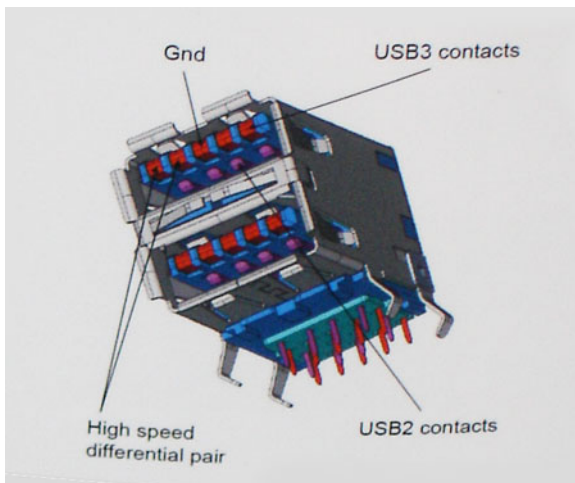


Speed

Currently, there are 3 speed modes that are defined by the latest USB 3.2 Gen 1 specification. They are Super-Speed, Hi-Speed, and Full-Speed. The new Super-Speed mode has a transfer rate of 4.8 Gbps. While the specification retains Hi-Speed, and Full-Speed USB mode, commonly known as USB 2.0 and 1.1 respectively, the slower modes still operate at 480 Mbps and 12 Mbps respectively and are kept to maintain backward compatibility.

USB 3.2 Gen 1 achieves the much higher performance by the technical changes below:

- An additional physical bus that is added in parallel with the existing USB 2.0 bus (see the figure below).
- USB 2.0 previously had four wires (power, ground, and a pair for differential data); USB 3.2 Gen 1 adds four more for two pairs of differential signals (receive and transmit) for a combined total of eight connections in the connectors and cabling.
- USB 3.2 Gen 1 utilizes the bi-directional data interface, rather than USB 2.0's half-duplex arrangement. This gives a 10-fold increase in theoretical bandwidth.



With today's ever increasing demands that are placed on data transfers with high-definition video content, terabyte storage devices, high megapixel count digital cameras etc., USB 2.0 may not be fast enough. Furthermore, no USB 2.0 connection could ever come close to the 480Mbps theoretical maximum throughput, making data transfer at around 320 Mbps (40 MB/s) — the actual real-world maximum. Similarly, USB 3.2 Gen 1 connections will never achieve 4.8Gbps. We will likely see a real-world maximum rate of 400 MB/s with overheads. At this speed, USB 3.2 Gen 1 is a 10x improvement over USB 2.0.

Applications

USB 3.2 Gen 1 opens up the laneways and provides more headroom for devices to deliver a better overall experience. Where USB video was barely tolerable previously (both from a maximum resolution, latency, and video compression perspective), it's easy to imagine that with 5-10 times the bandwidth available, USB video solutions should work that much better. Single-link DVI requires almost 2Gbps throughput. Where 480Mbps was limiting, 5Gbps is more than promising. With its promised 4.8Gbps speed, the standard will find its way into some products that previously weren't USB territory, like external RAID storage systems.

Listed below are some of the available Super-Speed USB 3.2 Gen 1 products:

- External Desktop USB 3.2 Gen 1 Hard Drives
- Portable USB 3.2 Gen 1 Hard Drives
- USB 3.2 Gen 1 Drive Docks & Adapters
- USB 3.2 Gen 1 Flash Drives & Readers
- USB 3.2 Gen 1 Solid-state Drives
- USB 3.2 Gen 1 RAIDs
- Optical Media Drives
- Multimedia Devices
- Networking
- USB 3.2 Gen 1 Adapter Cards & Hubs

Compatibility

The good news is that USB 3.2 Gen 1 has been carefully planned from the start to peacefully co-exist with USB 2.0. First of all, while USB 3.2 Gen 1 specifies new physical connections and thus new cables to take advantage of the higher speed capability of the new protocol, the connector itself remains the same rectangular shape with the four USB 2.0 contacts in the exact same location as before. Five new connections to carry receive and transmitted data independently are present on USB 3.2 Gen 1 cables and only come into contact when connected to a proper Super-Speed USB connection.

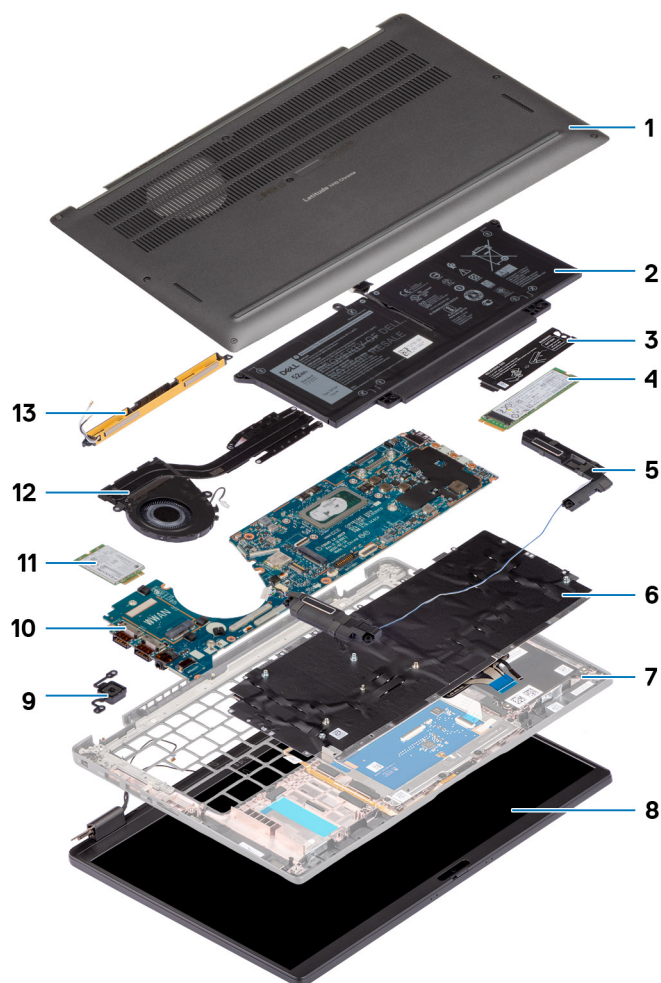
Major components of your system

This chapter details the major components available in the system.

Topics:

- [Major components of your system](#)

Major components of your system



1. Base cover
2. Battery
3. Solid-State Drive Thermal plate
4. Solid-State Drive
5. Speakers
6. Keyboard
7. Palmrest
8. Display Assembly
9. Power Button Module
10. System Board
11. Fan
12. Display Cable
13. Display Cable

11. WWAN Card
12. Fan Assembly
13. Palmrest Antenna Assembly

Disassembly and reassembly

Topics:

- [MicroSD card](#)
- [Base cover](#)
- [Battery](#)
- [Solid-state drive](#)
- [WWAN card](#)
- [Palmrest antenna](#)
- [Heatsink assembly](#)
- [Display assembly](#)
- [Speakers](#)
- [Power button](#)
- [System board](#)
- [Keyboard](#)
- [Palmrest assembly](#)

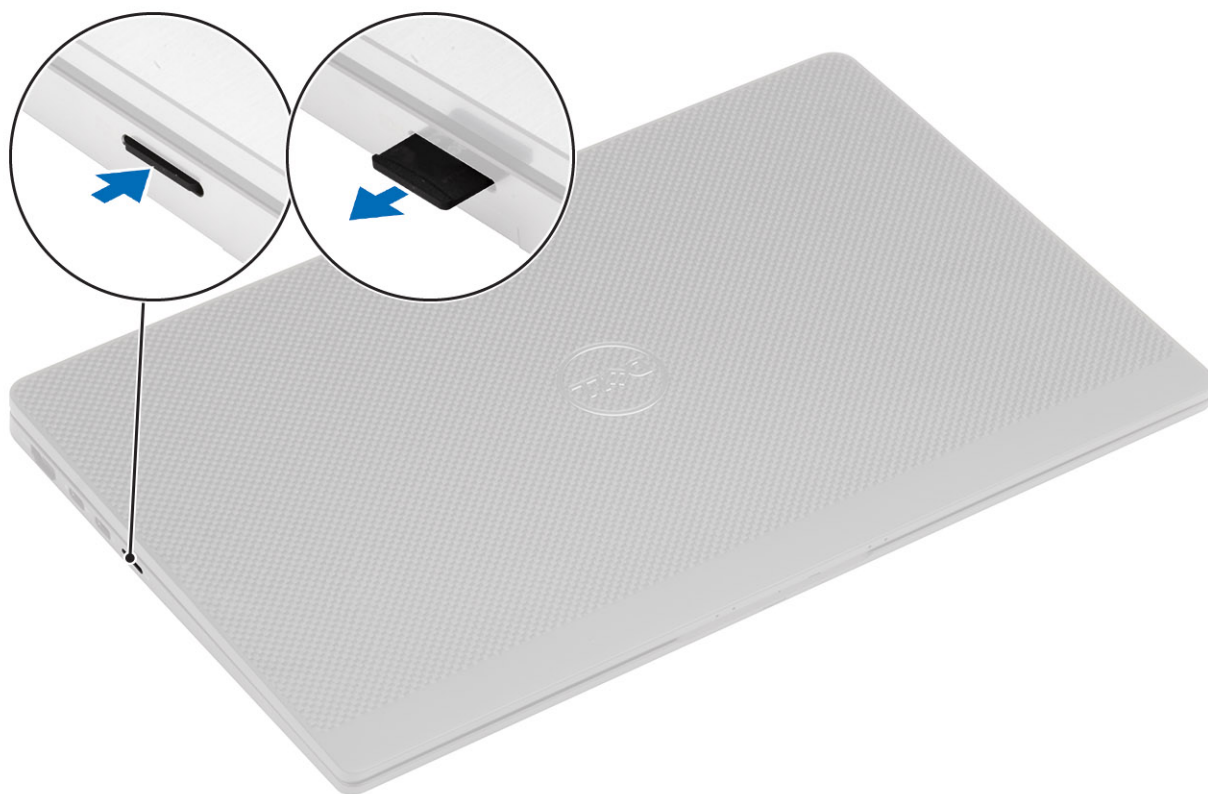
MicroSD card

Removing the microSD card

Prerequisites

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

About this task

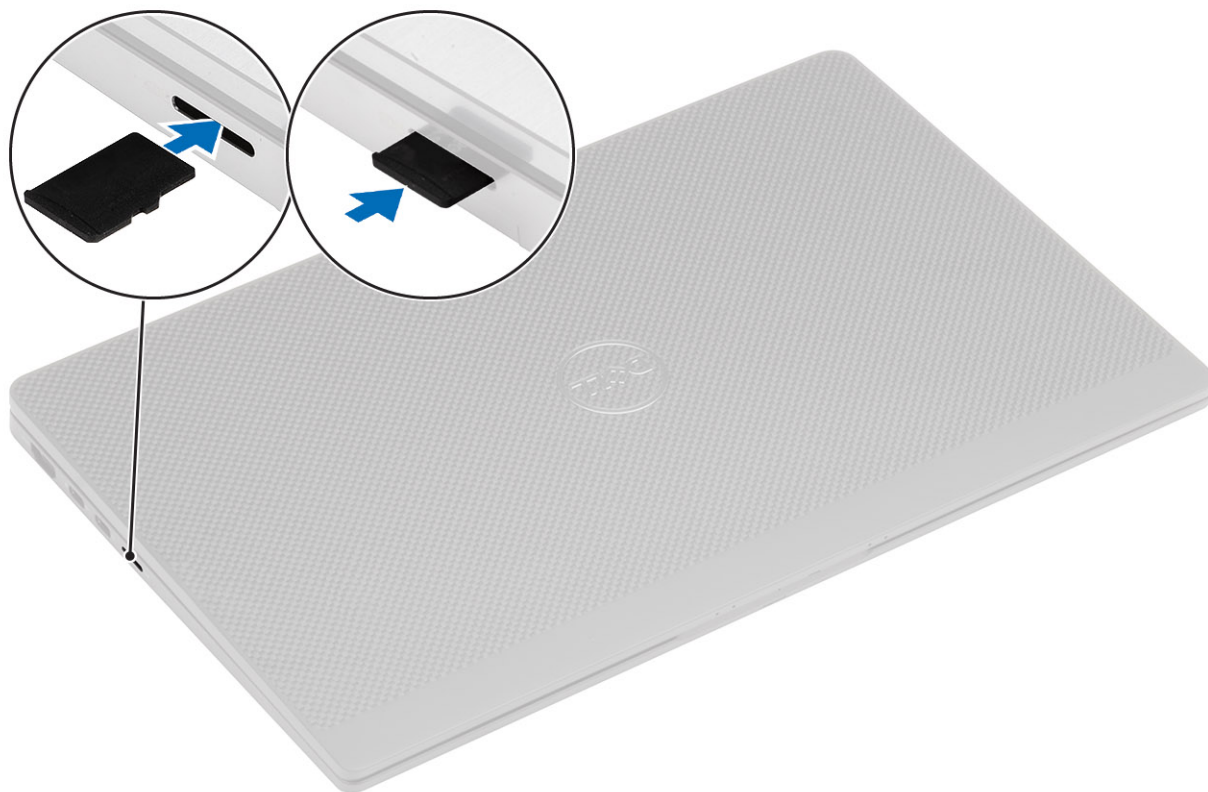


Steps

1. Push the microSD card to release it from the computer.
2. Slide the microSD card out of the computer.

Installing the microSD card

About this task



Steps

1. Align the microSD card to its slot on the computer.
2. Slide the microSD card into the slot until it clicks into place.

Next steps

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

Base cover

Removing the base cover

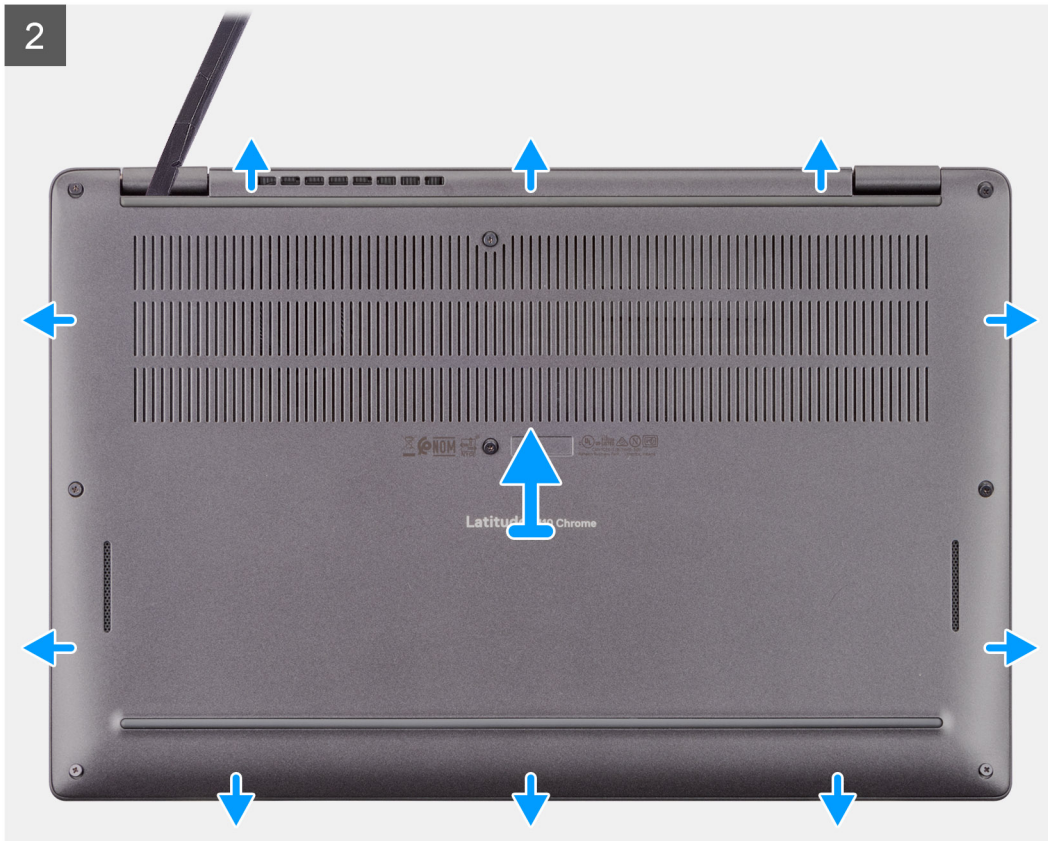
Prerequisites

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

About this task

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





Steps

1. Loosen the eight captive screws that secure the base cover to the palmrest assembly.
2. Starting from the top-left corner, use a plastic scribe to pry the base cover outwards to release the base cover from the palm-rest assembly and remove it from the system.

NOTE: Do not slide the scribe through the edge of the top side of the base cover, as it damages the latches inside



the base cover.

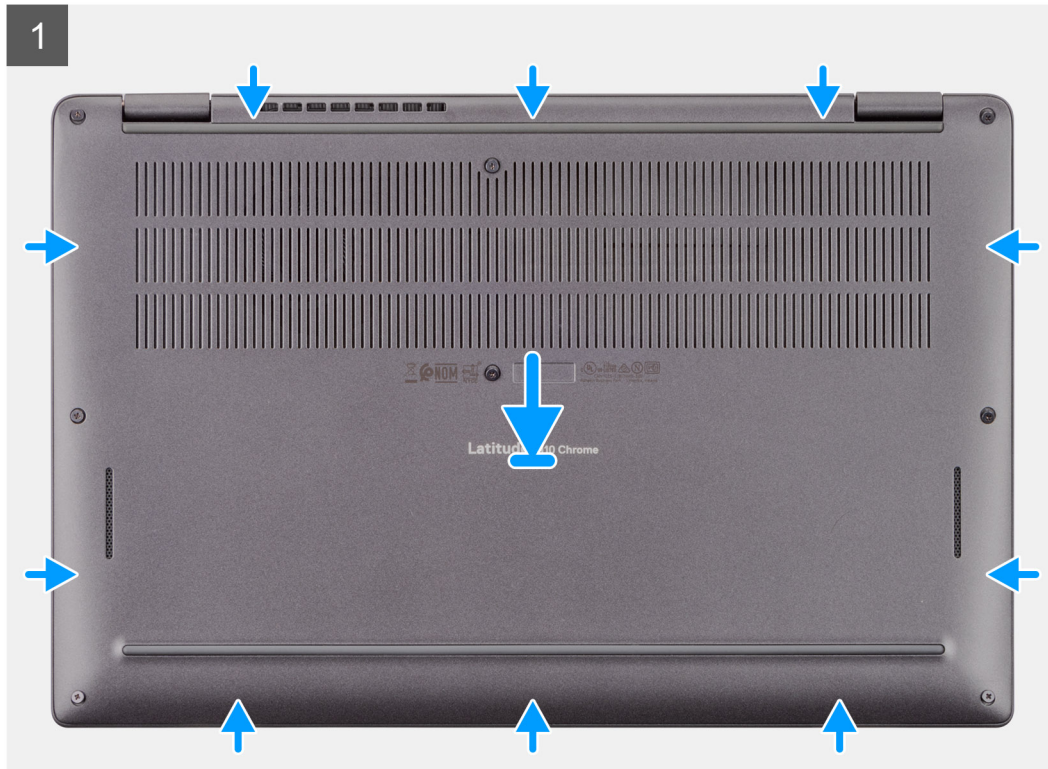
Installing the base cover

Prerequisites

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

About this task

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





Steps

1. Align the screw holes on the base cover with the screw holes on the palmrest assembly, and then snap the base cover into place.
2. Tighten the eight captive screws that secure the base cover to the palmrest assembly.

Next steps

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

Battery

Lithium-ion battery precautions

⚠ CAUTION:

- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery completely before removing it. Disconnect the AC power adapter from the system and operate the computer solely on battery power—the battery is fully discharged when the computer no longer turns on when the power button is pressed.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.

- Do not use tools of any kind to pry on or against the battery.
- Ensure any screws during the servicing of this product are not lost or misplaced, to prevent accidental puncture or damage to the battery and other system components.
- If the battery gets stuck inside your computer as a result of swelling, do not try to release it as puncturing, bending, or crushing a lithium-ion battery can be dangerous. In such an instance, contact Dell technical support for assistance. See www.dell.com/contactdell.
- Always purchase genuine batteries from www.dell.com or authorized Dell partners and resellers.

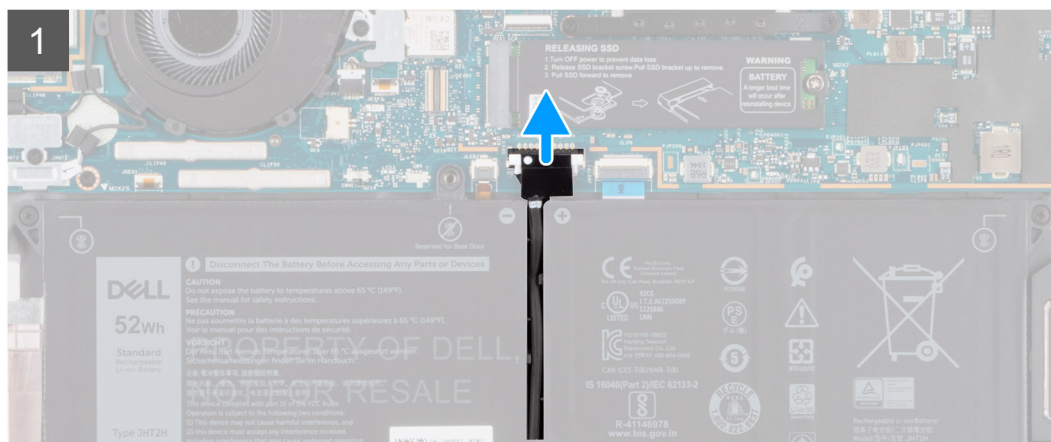
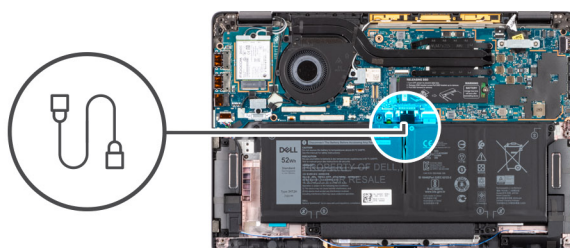
Disconnecting the battery cable

Prerequisites

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

About this task

The following images indicate the location of the battery cable and provide a visual representation of the disconnection procedure.



Steps

Using the pull tab, remove the battery cable from connector the system board.

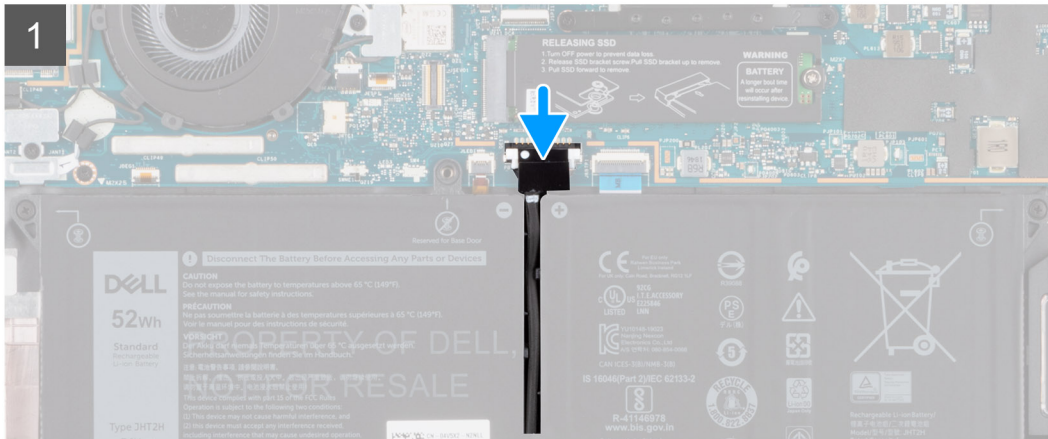
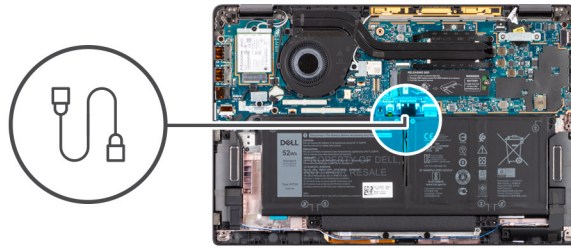
Reconnecting the battery cable

Prerequisites

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

About this task

The following images indicate the location of the battery cable and provide a visual representation of the reconnecting procedure.



Steps

Re-connect the battery cable by sliding the cable connector into the pull tab connector on the system board.

Next steps

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

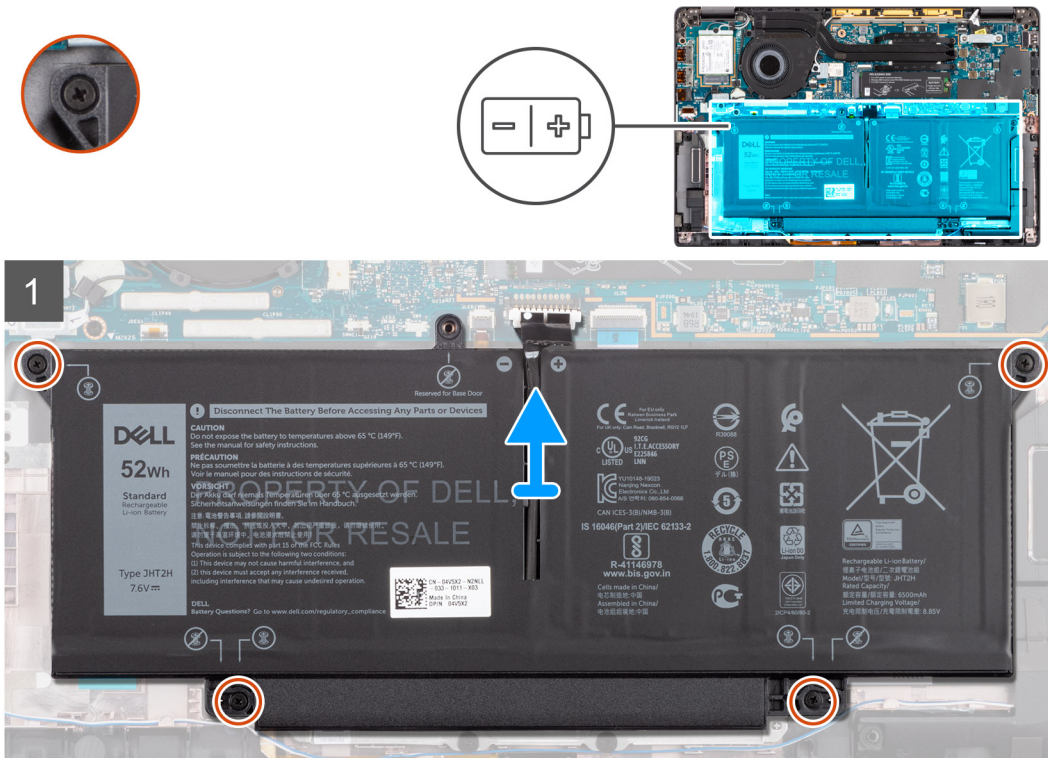
Removing the battery

Prerequisites

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

About this task

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



Steps

1. Loosen the four captive screws that secure the battery to the palmrest assembly.
2. Lift and remove the battery from the system.

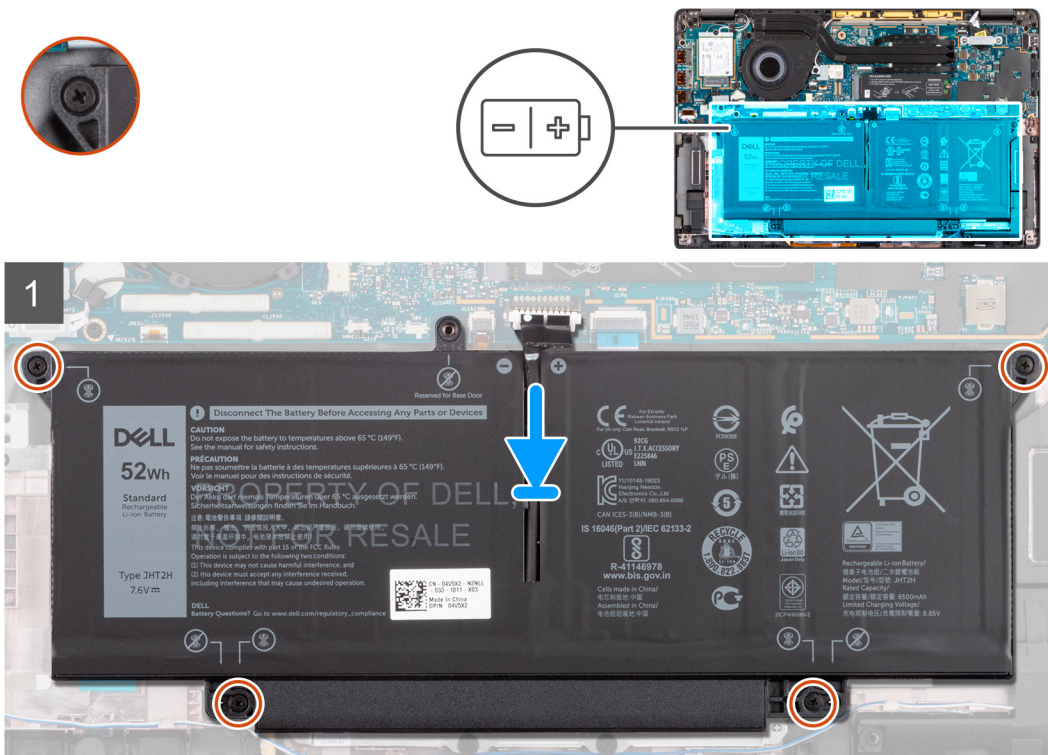
Installing the battery

Prerequisites

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

About this task

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



Steps

1. Align the screws on the battery with the screw holes on the palmrest assembly and place the battery.
2. Tighten the four captive screws that secure the battery to the palmrest assembly.

Next steps

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

Solid-state drive

Removing the 2230 Solid State Drive

Prerequisites

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

About this task

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

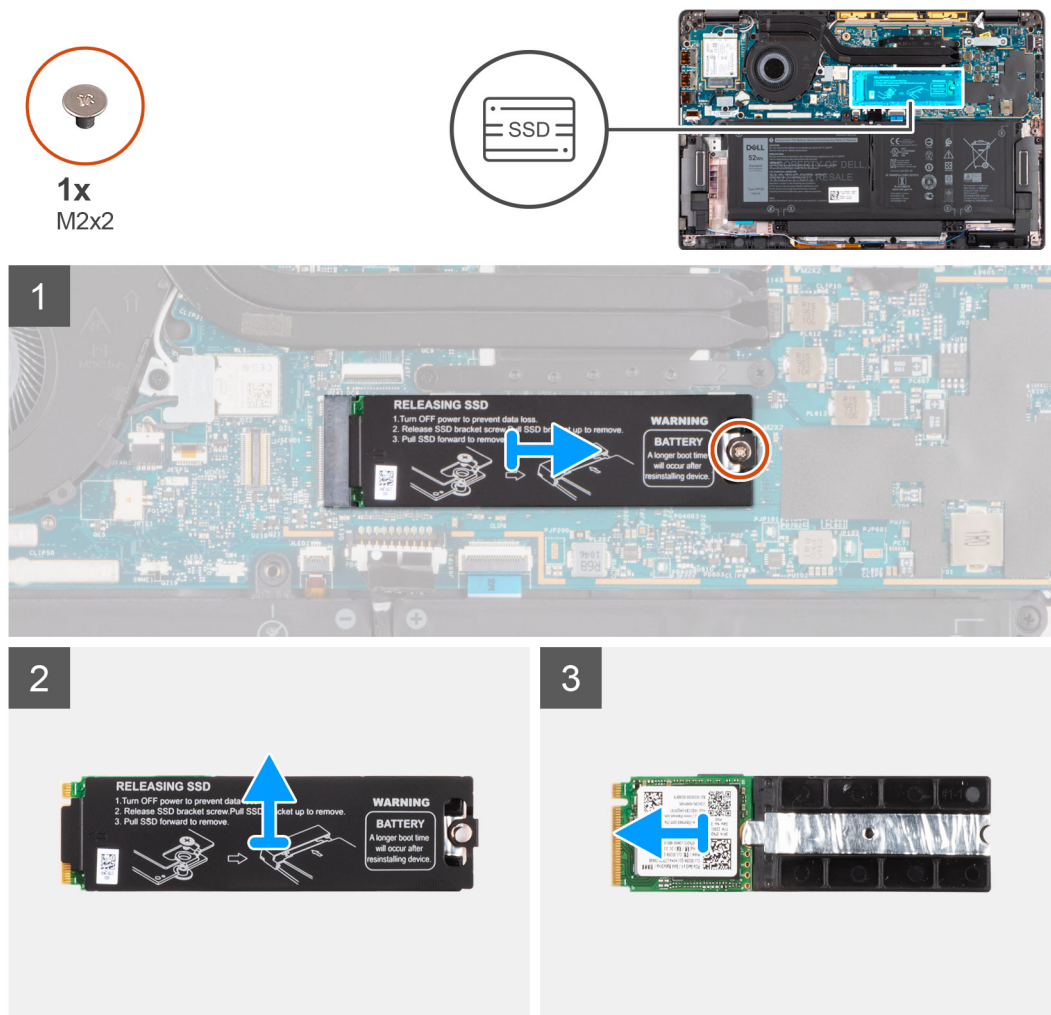


Figure 1. 2230 SSD

Steps

1. Remove the single (M2x2) screw that secures the SSD and SSD thermal plate to the system board, slide out the SSD with the thermal plate from the slot on the system board.
2. Remove the thermal plate from over the SSD.

NOTE: The thermal plate should be removed with the SSD, since the adhesive is strong and to avoid any damage to the SSD.

3. Remove the SSD from the SSD bracket.

Installing the 2230 Solid State Drive

Prerequisites

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

About this task

The following images indicate the location of the SSD (solid state drive) and provides a visual representation of the installation procedure.

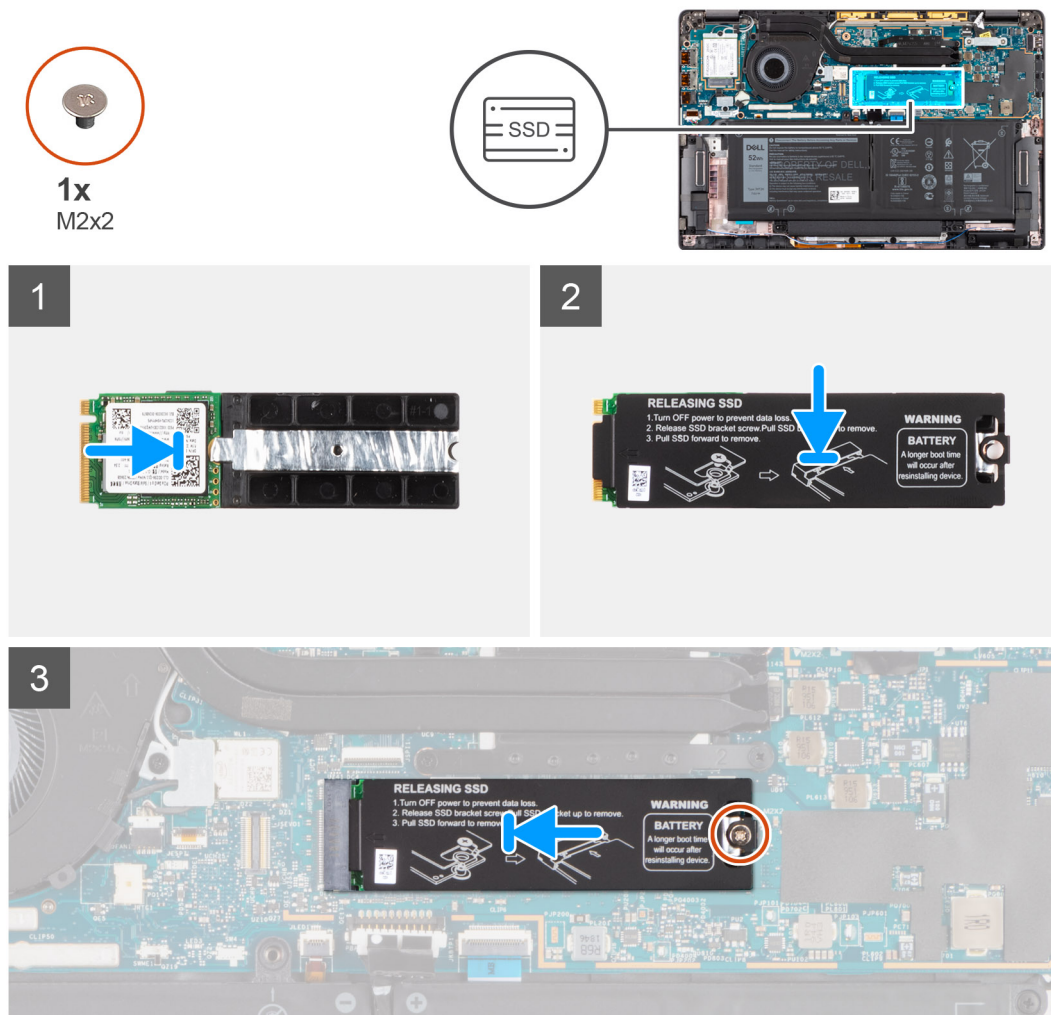


Figure 2. 2230 SSD

Steps

1. Install the M.2 2230 SSD to the SSD bracket so that the top side of the SSD (with the sticker) is facing up.
2. Place the thermal plate on top of the SSD covering it completely.
3. Connect the SSD to the M.2 port on the system board and replace the single (M2x2) screw securing it to the system board.

Next steps

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

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

Removing the 2280 Solid State Drive

Prerequisites

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

About this task

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

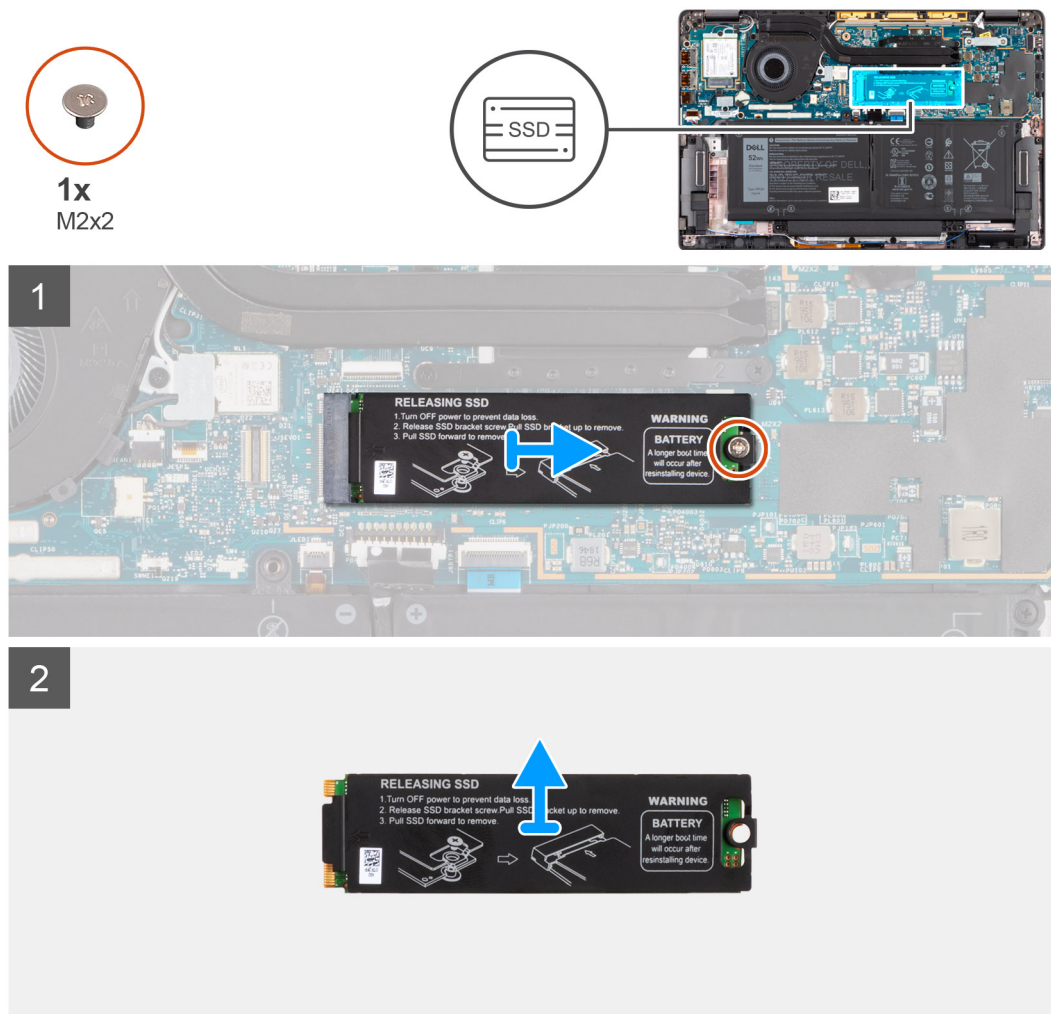


Figure 3. 2280 SSD

Steps

1. Remove the single (M2x2) screw that secures the SSD and SSD thermal plate to the system board, slide out the SSD with the thermal plate from the slot on the system board.
2. Remove the thermal plate from over the SSD.

NOTE: The thermal plate should be removed with the SSD, since the adhesive is strong and to avoid any damage to the SSD.

Installing the 2280 Solid State Drive

Prerequisites

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

About this task

The following images indicate the location of the SSD (solid state drive) and provides a visual representation of the installation procedure.

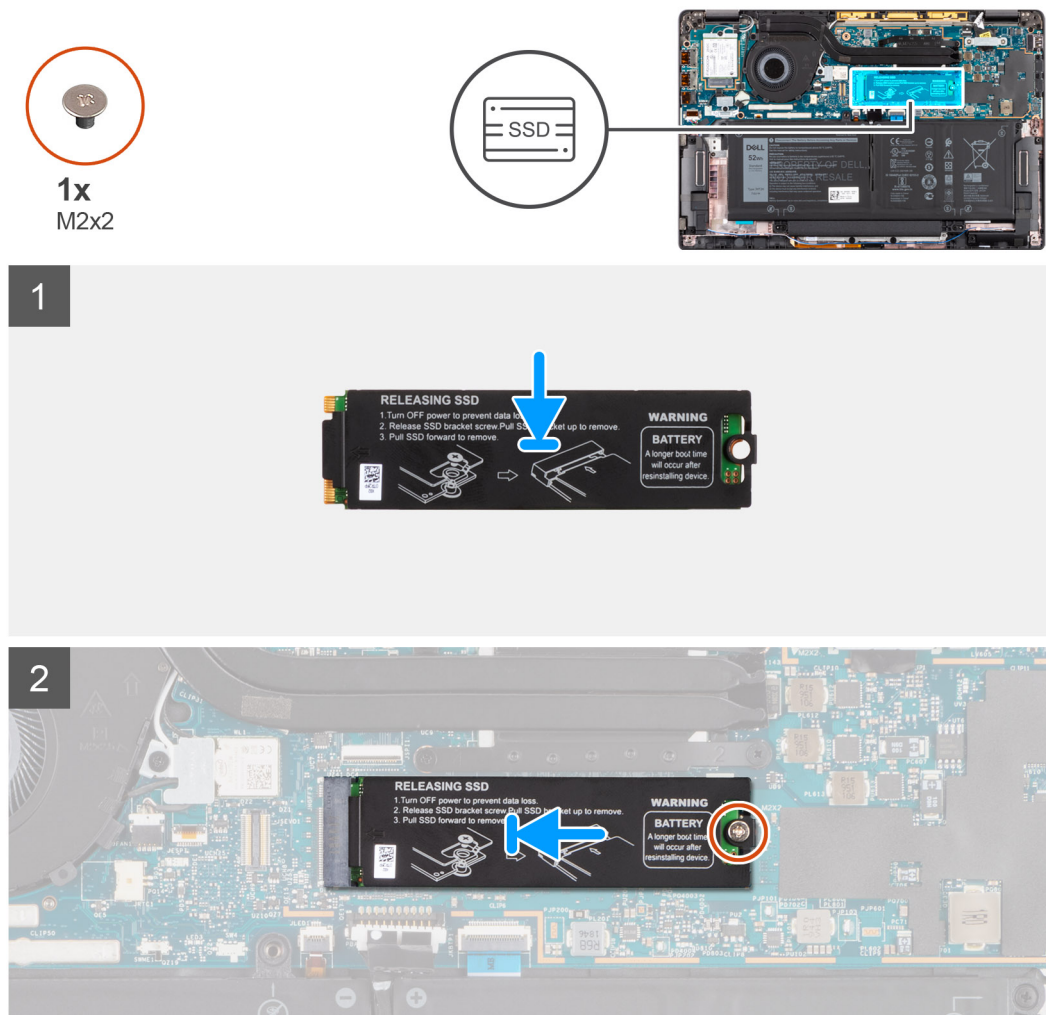


Figure 4. 2280 SSD

Steps

1. **NOTE:** Install the M.2 2230 SSD to the thermal bracket so that the top side of the SSD (with the sticker) is facing up.

Place the thermal bracket on top of the SSD covering it completely.

2. Connect the SSD to the M.2 port on the system board and replace the single (M2x2) screw securing it to the system board.

Next steps

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

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

WWAN card

Removing the WWAN card

Prerequisites

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

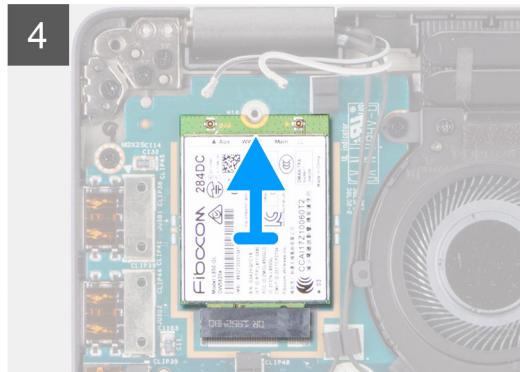
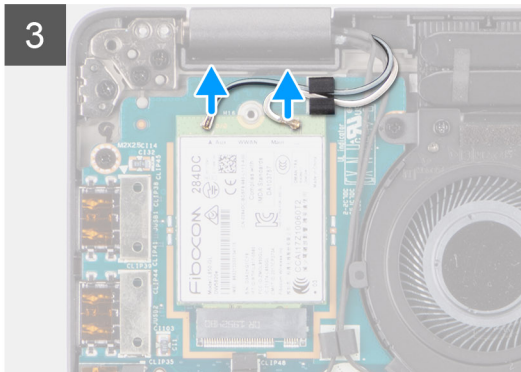
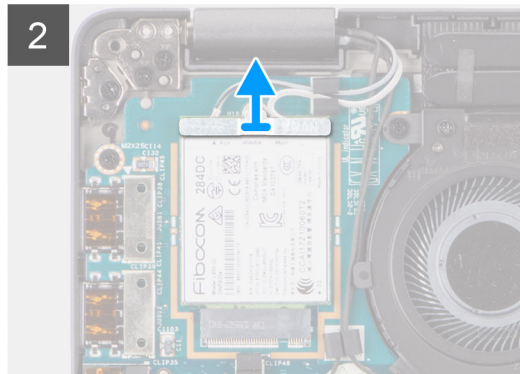
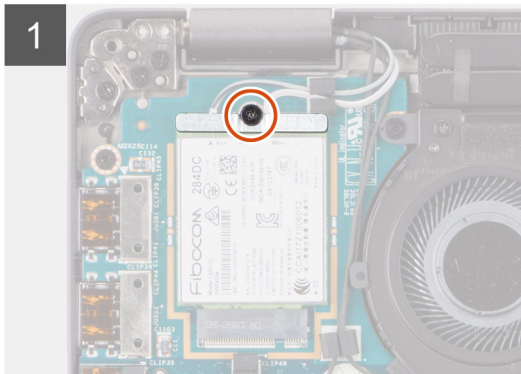
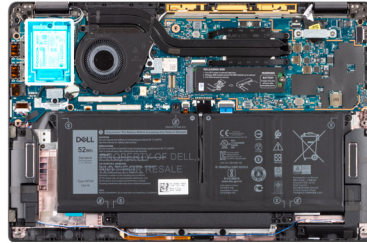
2. Remove the [base cover](#).
3. Disconnect the [battery cable](#).

About this task

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



1x
M2x3



Steps

1. Remove the single (M2x3) screw securing the WWAN bracket to the WWAN card.
2. Lift and remove the WWAN bracket from over the WWAN card.
3. Disconnect the antenna cables from the WWAN card.
4. Lift and remove the WWAN card from its slot on the system board.

Installing the WWAN card

Prerequisites

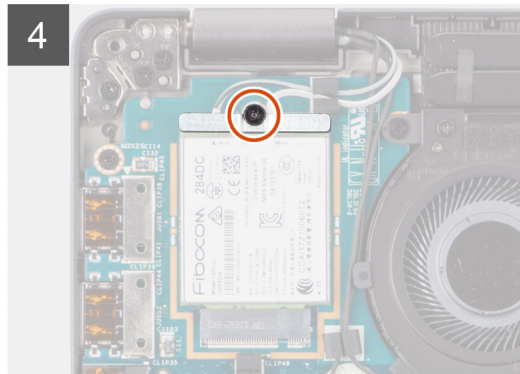
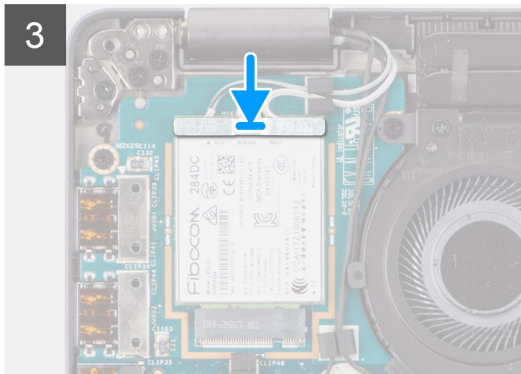
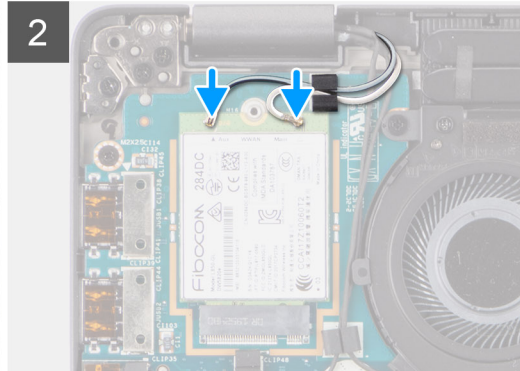
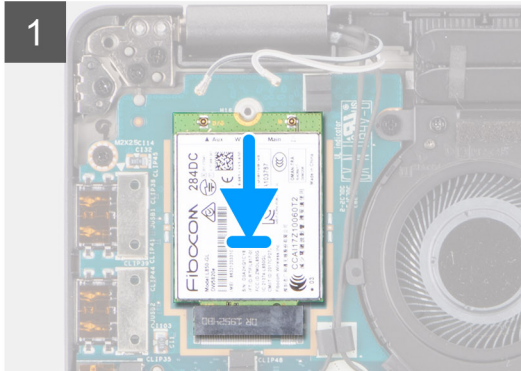
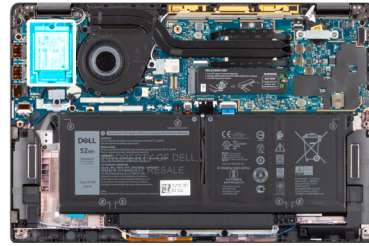
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

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



1x
M2x3



Steps

1. Replace the WWAN card into its slot on the system board.
2. Connect the antenna cables to the WWAN card.

NOTE: The black cable connects to the left antenna lead and the white cable connects to the right antenna lead.

3. Replace the WWAN bracket on top of the antenna cables.
4. Replace the single (M2x3) screw securing it to the system board.

Next steps

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

Palmrest antenna

Disconnecting the WLAN antenna

Prerequisites

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

3. Disconnect the [battery cable](#).

About this task

The following images indicate the location of the WLAN antenna and provides a visual representation of the disconnection procedure.



Steps

Disconnect the two antenna cables from the WLAN module

i **NOTE:** Since the WLAN card is soldered onto the system board, it cannot be removed. In case of WLAN failure, the system board needs to be replaced.

Heatsink assembly

Removing the heatsink assembly

Prerequisites

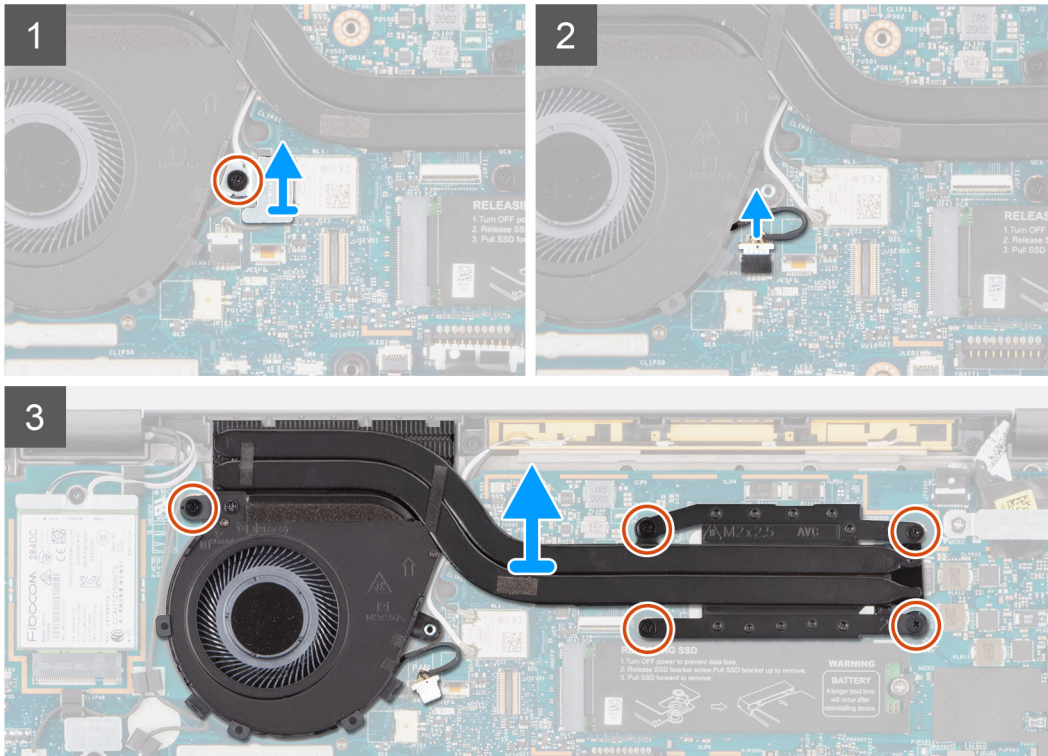
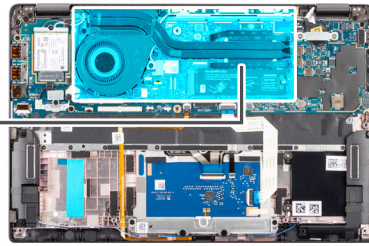
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the [base cover](#).
3. Disconnect the [battery cable](#).

About this task

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



6x
M2x2.5



Steps

1. Remove the single (M2x2.5) screw from the WLAN bracket and lift it away from the system.

NOTE: The fan cable is routed under the WLAN shield plate. It can only be accessed after the bracket is removed.

2. Disconnect the fan cable from the connector on the system board.
3. Remove the five (M2x2.5) screw from the heatsink assembly, then lift and remove the heatsink assembly from the system board.

Installing the heatsink assembly

Prerequisites

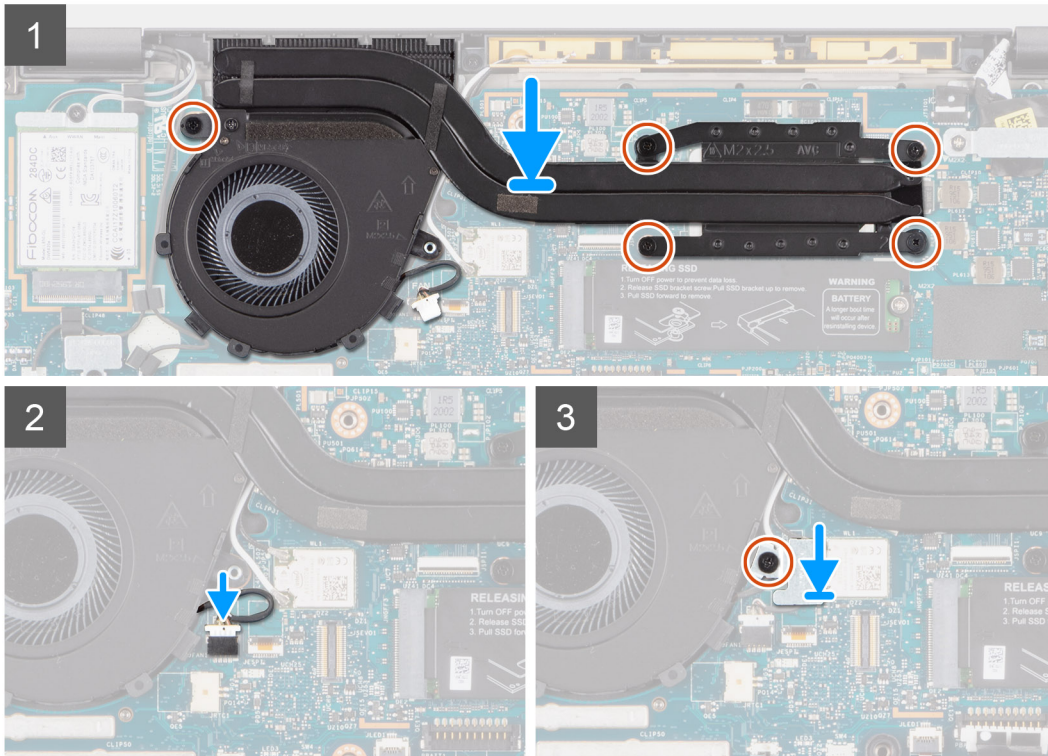
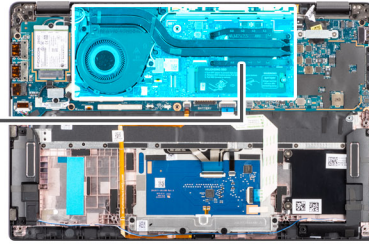
If you are replacing a component, remove the existing component before performing the installation procedure.

About this task

The following images indicate the location of the heatsink assembly and provide a visual representation of the installation procedure.



6x
M2x2.5



Steps

1. Place the heatsink assembly into the slot in the system board and replaced the five (M2x2.5) screws to secure it to the system board.
2. Reconnect the fan cable to the connector on the system board.
3. Place the WLAN bracket onto the WLAN antennas and replace the single (M2x2.5) screw that secures the shield plate to the system board

NOTE: The fan cable must be routed under the shield plate.

Next steps

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

Display assembly

Removing the display assembly

Prerequisites

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

3. Disconnect the [battery cable](#).

About this task

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



Steps

1.  **CAUTION:** If the system unit is shipped with WWAN card, remove the WWAN bracket and disconnect the antennae cables.

Remove the two (M2x2) screws that secures the WWAN bracket to the system board and remove it from the system board.

2. Disconnect the WWAN antennas and free them from the routing points on the system board.
3. Remove the two (M2x2) screws from the eDP bracket and remove the bracket from the system.
4. Disconnect the eDP and camera cables from the connectors on the system board.

CAUTION: Pull the pull tab vertically to disconnect the display cable from the system board.



5. Remove the two (M2.5x5) screws from the left hinge and fold it back.
6. Remove the two (M2.5x5) screws from the right hinge and fold it back.
7. Lift and remove the display assembly from the chassis.

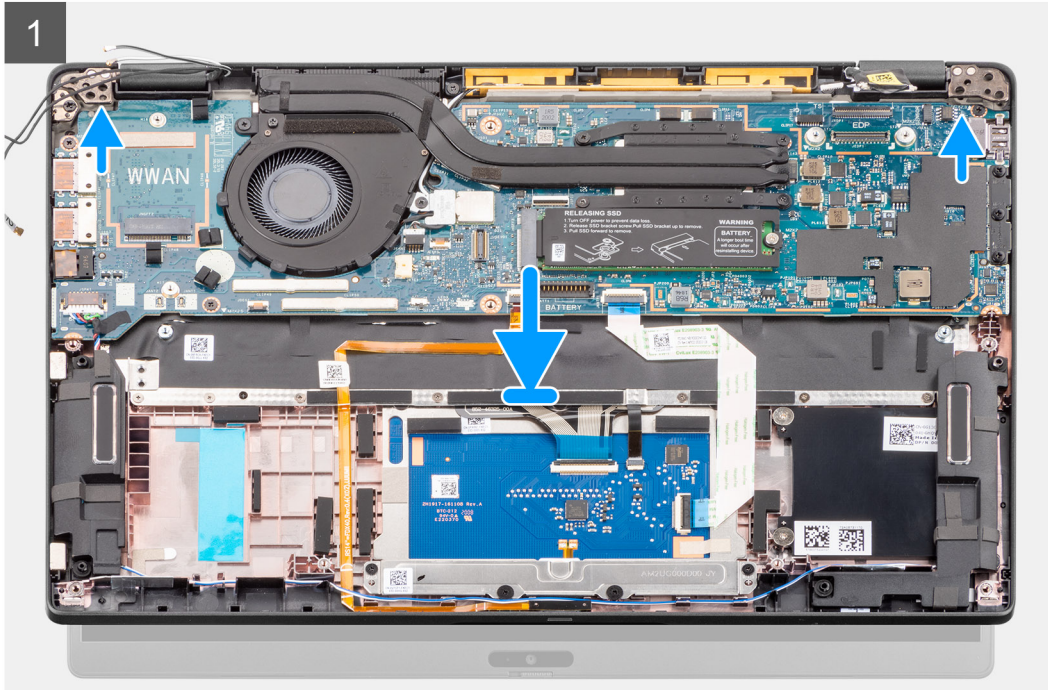
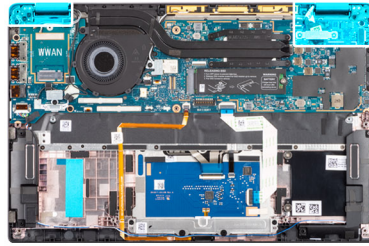
Installing the display assembly

Prerequisites

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

About this task

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



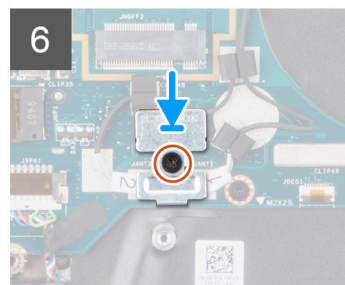
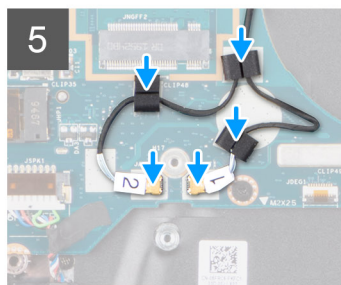
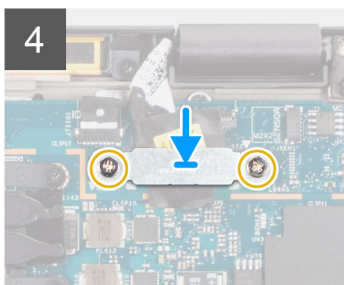
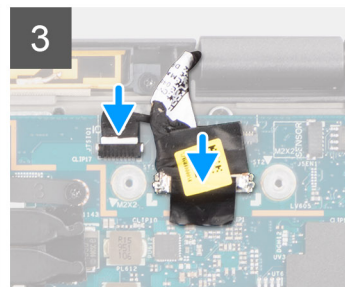
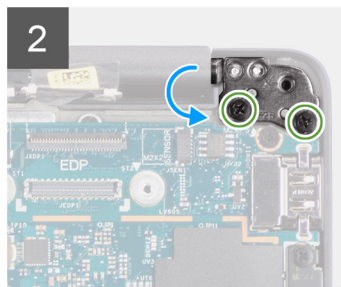
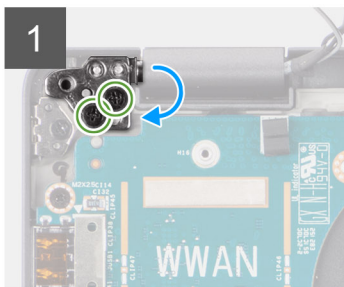
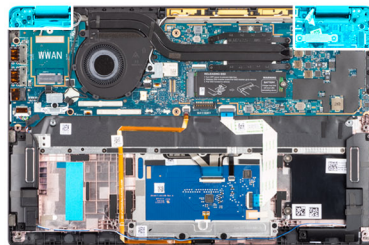
1x
M2x2.5



2x
M2x2



4x
M2.5x5



Steps

1. Align and place the display assembly onto the system chassis and fold the hinges inwards.
2. Fold the left hinge back and install the two (M2.5x5) screws to secure it to the chassis.
3. Fold the right hinge back and install the two (M2.5x5) screws to secure it to the chassis.
4. Connect the eDP and camera cable to the connectors on the system board.
5. Place the eDP bracket onto the eDP cable and secure it to the system board by installing the two (M2x2) screws.
6. Route the WWAN antenna cables through the routing points provided and connect them to the WWAN card.
7. Place the WWAN bracket on to the antennas and install the single (M2x2.5) screw.

Next steps

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

Speakers

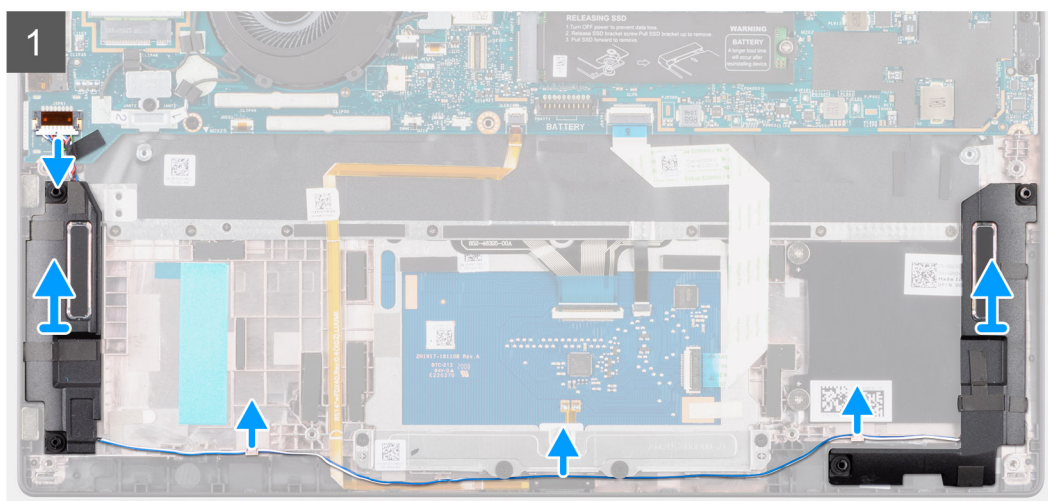
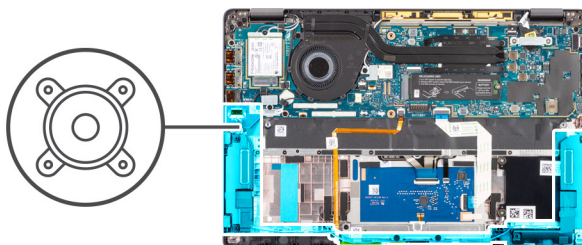
Removing the speaker

Prerequisites

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

About this task

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



Steps

1. Disconnect the speaker cable from its connector on the system board.
2. Remove the speaker cables from the guide path.
3. Lift and remove the speakers from its slot on the palmrest assembly.

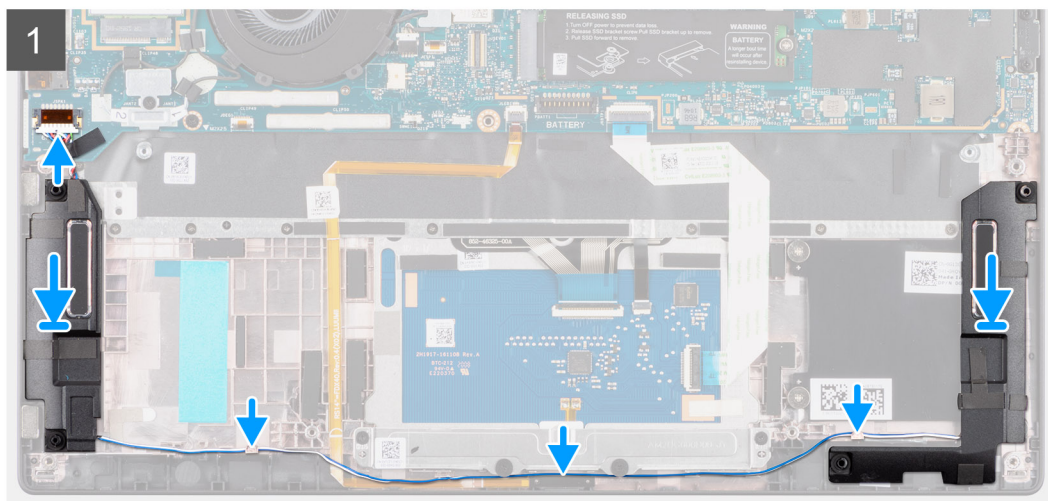
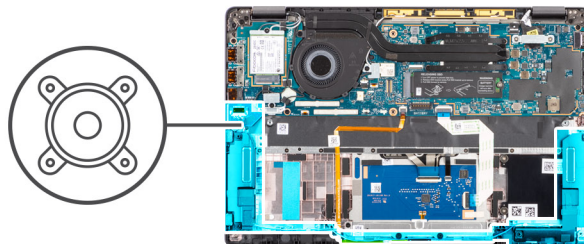
Installing the speaker

Prerequisites

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

About this task

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



Steps

1. Align and replace the right speaker into its slot in the palmrest assembly and route the speaker cable along the guide path.
2. Connect the speaker cable to its connector on the system board.

Next steps

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

Power button

Removing the power button

Prerequisites

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [Base cover](#)
 - b. [Battery](#)
 - c. [WWAN](#)
 - d. [SSD](#)
 - e. [WLAN antenna](#)
 - f. [Heatsink](#)
 - g. [System board](#)

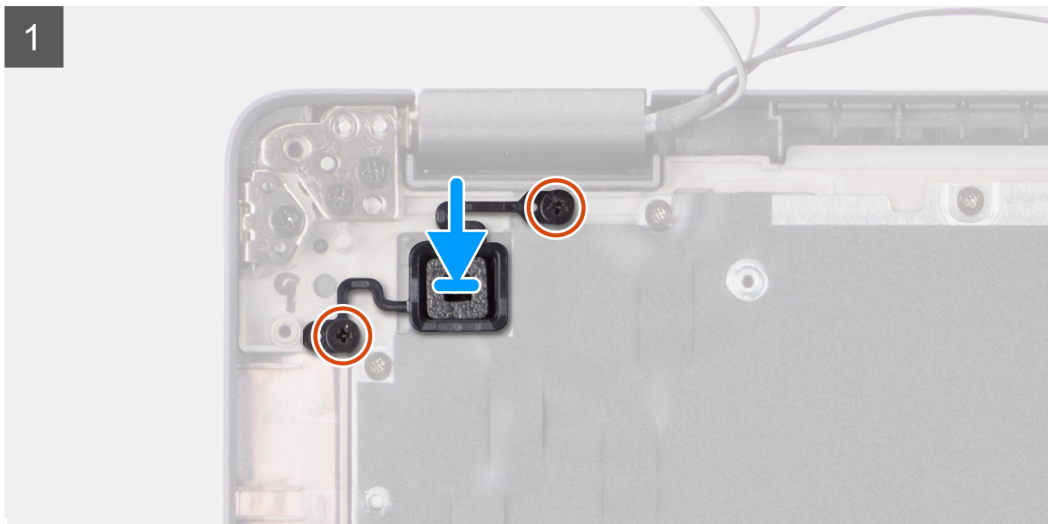
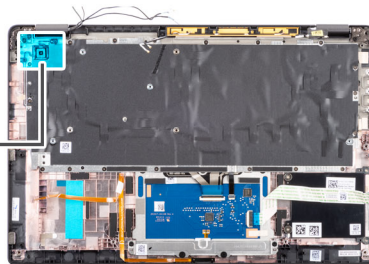
 **NOTE:** System board can be disassembled without having to remove the heatsink assembly.

About this task

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



2x
M2X2.5



Steps

1. Remove the two (M2x2.5) screws securing the power button to the palmrest assembly.
2. Remove the power button from its slot in the palmrest assembly.

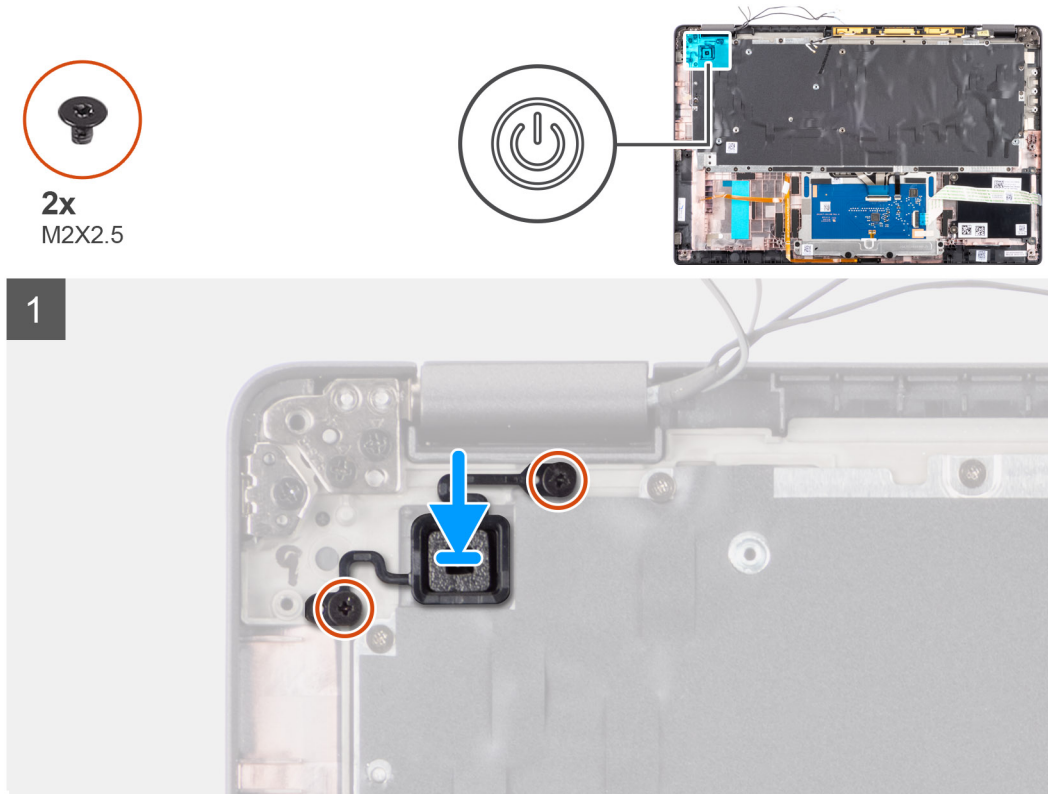
Installing the power button

Prerequisites

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

About this task

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



Steps

1. Replace the power button into its slot in the palmrest assembly.
2. Replace the two (M2x2.5) screws securing power button to the palmrest assembly.

Next steps

1. Install the:
 - a. [System board](#)
 - b. [Heatsink](#)
 - c. [WLAN antenna](#)
 - d. [WWAN card](#)
 - e. [SSD](#)
 - f. [Battery](#)
 - g. [Base cover](#)
2. Follow the procedure in [After working inside your computer](#).

System board

Removing the system board

Prerequisites

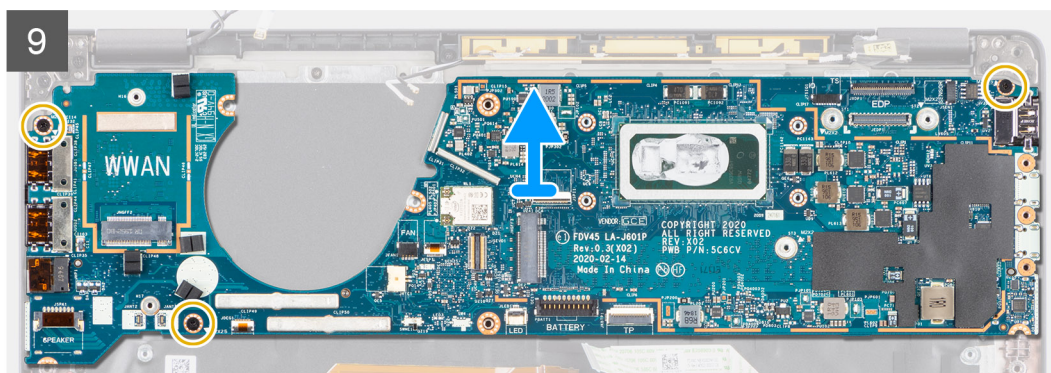
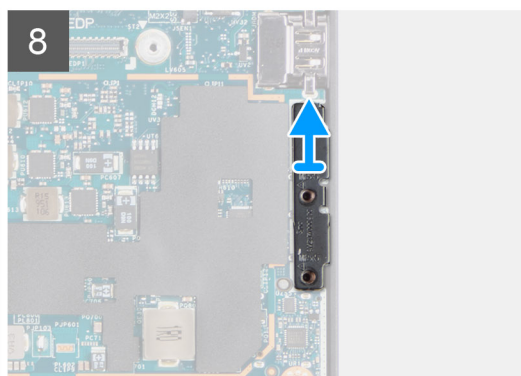
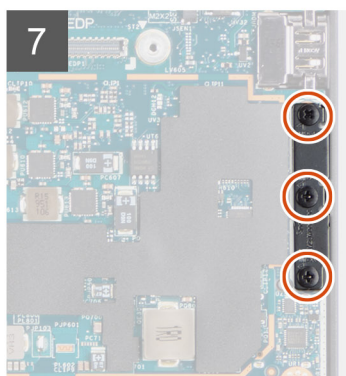
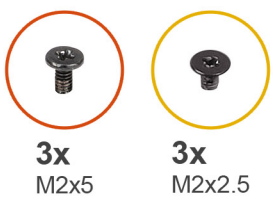
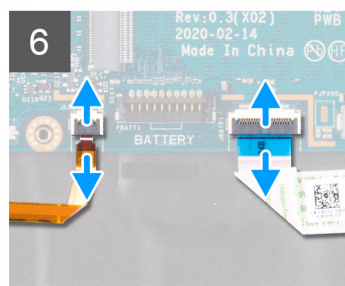
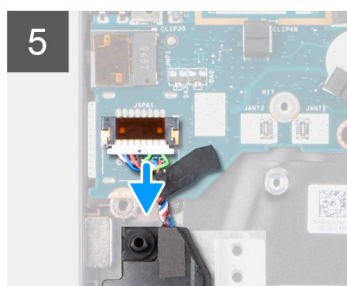
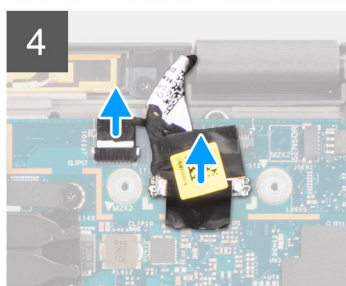
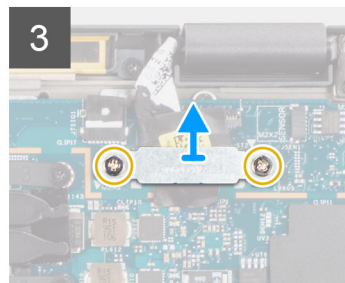
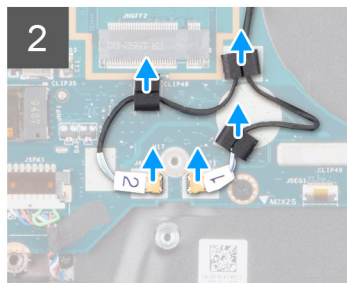
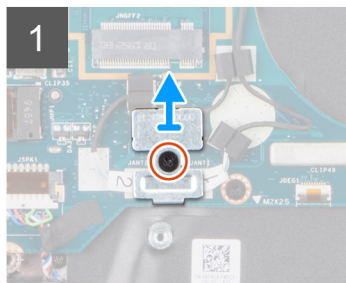
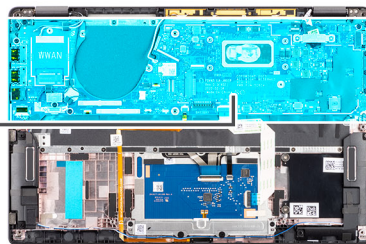
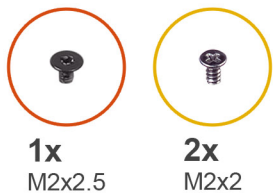
1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [Base cover](#)
 - b. [Battery](#)
 - c. [Solid state drive](#)
 - d. [WLAN antenna](#)
 - e. [Heatsink assembly](#)



NOTE: System board can be disassembled without having to remove the heatsink assembly.

About this task

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



Steps

1. Remove the single (M2x2.5) screws securing WWAN shield plate and remove it from the system.
2. Un-thread the wireless antennae cables.
3. Remove the two (M2x2) screws securing the shield plate on the eDP bracket and remove it from the system board.
4. Disconnect the following cables from the system board :
 - Display cable
 - Touchscreen cable (for systems shipped with touchscreen)
 - Speaker cable
 - Battery LED cable
 - Touchpad cable
5. Remove the two (M2x5) screws securing the Type-C USB bracket to the system board.
6. Remove the USB Type-C bracket from the system board.
7. Remove the three (M2x2.5) screw securing the system board to the palmrest assembly.
8. Remove the system board from the system.

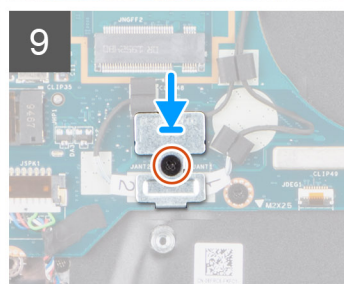
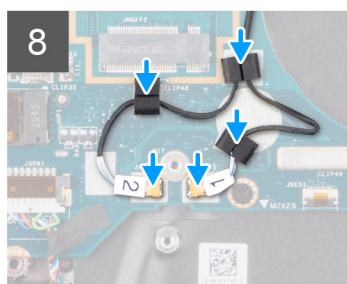
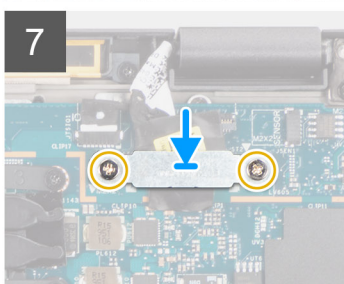
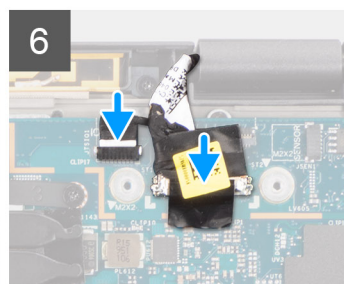
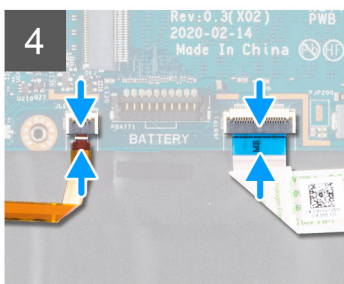
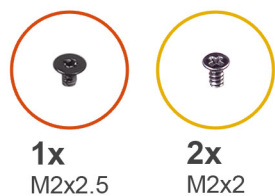
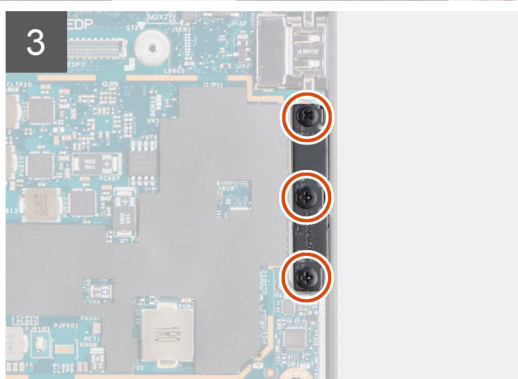
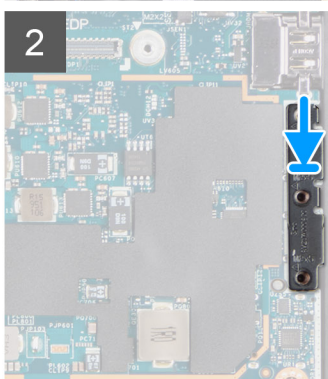
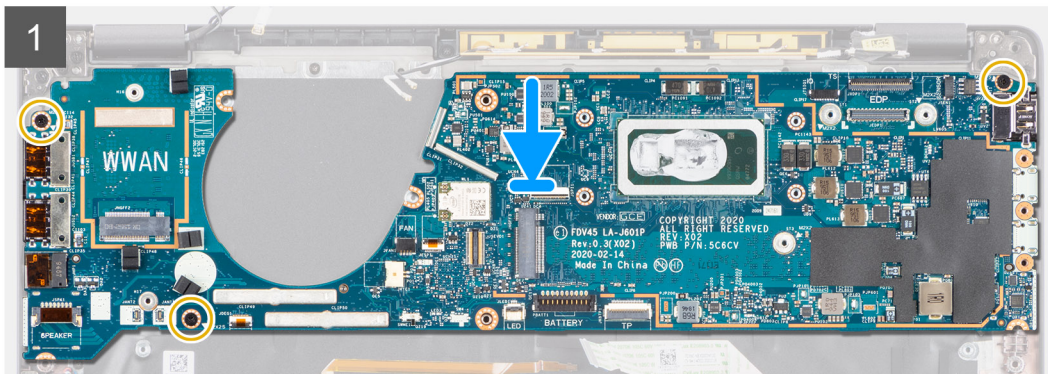
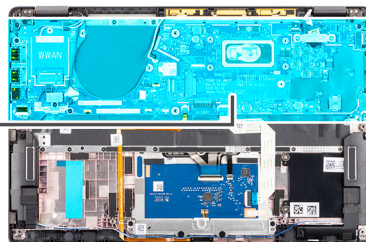
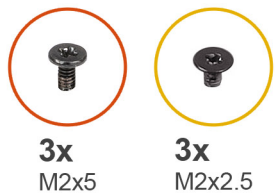
Installing the system board

Prerequisites

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

About this task

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



Steps

1. Align and place the system board into the palmrest assembly, and replace the three (M2x2.5) screw securing the system board to the palmrest assembly.
2. Place the USB Type-C bracket on to the USB C ports.
3. Secure the USB Type-C bracket using the three (M2x5) screws.
4. Connect the following cables:
 - Battery LED cable
 - Touchpad cable
5. Connect the speaker cable to the connector on the system board.
6. Connect the eDP and camera cable to the connectors on the system board.
7. Place the eDP bracket on the display cable and install the two (M2x2) screws securing it to the system board
8. Re-route the antennae cable on the system board and reconnect the WWAN antennas.
9. Place the WWAN bracket on the antennas and install the single (M2x2.5) screws securing it to the system board.

Next steps

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

1. Install the:
 - a. [Heatsink assembly](#)
 - b. [WLAN antennae](#)
 - c. [Solid state drive](#)
 - d. [Battery](#)
 - e. [Base cover](#)
2. Follow the procedure in [After working inside your computer](#).

Keyboard

Removing the keyboard

Prerequisites

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

- a. [Base cover](#)
- b. [Battery](#)
- c. [WLAN antennas](#)
- d. [Heatsink assembly](#)
- e. [System board](#)

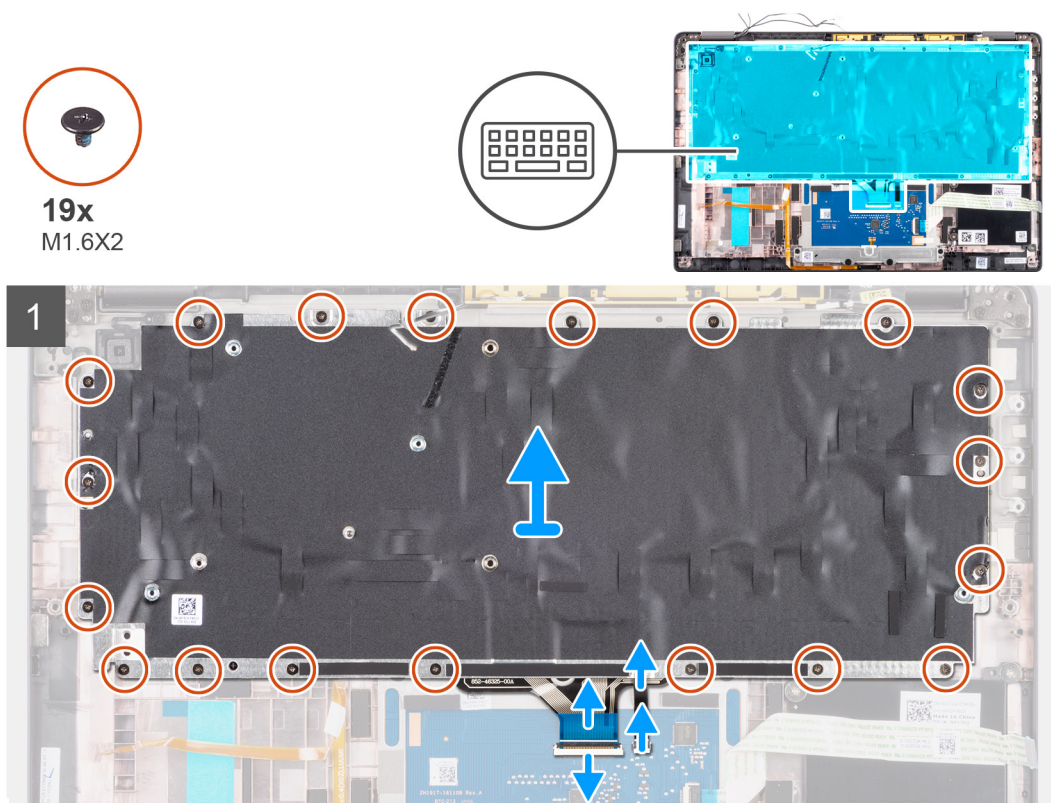


NOTE: System board can be disassembled without having to remove the heatsink assembly.

- f. [Solid state drive](#)

About this task

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



Steps

1. Remove the nineteen (M1.6x2) screws securing the keyboard to the palmrest assembly.
2. Disconnect the keyboard and backlight cable from the touchpad module.

NOTE: For models shipped with a carbon-fiber palm rest, there are nineteen (M1.6x2) screws that secure the keyboard plate to the system.

NOTE: For models shipped with an aluminum palm rest, there are twenty-six (M1.6x2) screws that secure the keyboard plate to the system.

Next steps

Remove the two (M2x2) screws to remove the keyboard from the keyboard support plate.



Installing the keyboard

Prerequisites

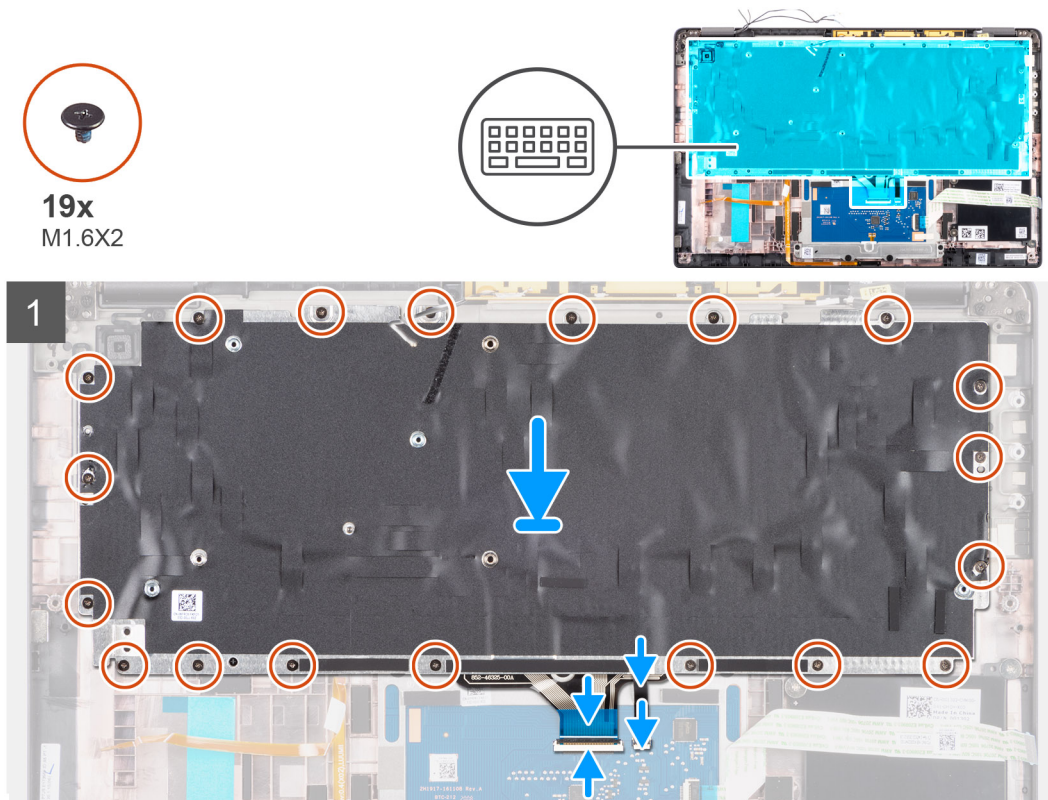
If you are replacing a component, remove the existing component before performing the installation procedure.

NOTE: When re-assembling the keyboard, properly seat the keyboard using the positioning pins on the keyboard support plate. The screw holes can be identified by the black mylar covering it on the other side.



About this task

The following images indicate the location of the keyboard and provide a visual representation of the installation procedure.



Steps

1. Align the and place the keyboard into its slot in the palmrest assembly.
2. Replace the nineteen (M1.6x2) screws securing the keyboard to the palmrest assembly.

Next steps

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

1. Install the:
 - a. [System board](#)
 - b. [Heatsink assembly](#)
 - c. [Solid state drive](#)
 - d. [Battery](#)
 - e. [Base cover](#)
2. Follow the procedure in [After working inside your computer.](#)

Palmrest assembly

Removing and Installing the Palmrest assembly

Prerequisites

1. Follow the procedure in [Before working inside your computer.](#)
2. Remove the:
 - a. [Base cover](#)
 - b. [Battery](#)
 - c. [Solid state drive](#)

- d. [WWAN card](#)
- e. [Heatsink assembly](#)
- f. [Display assembly](#)
- g. [Speakers](#)
- h. [Power button](#)
- i. [System board](#)
- j. [Keyboard](#)

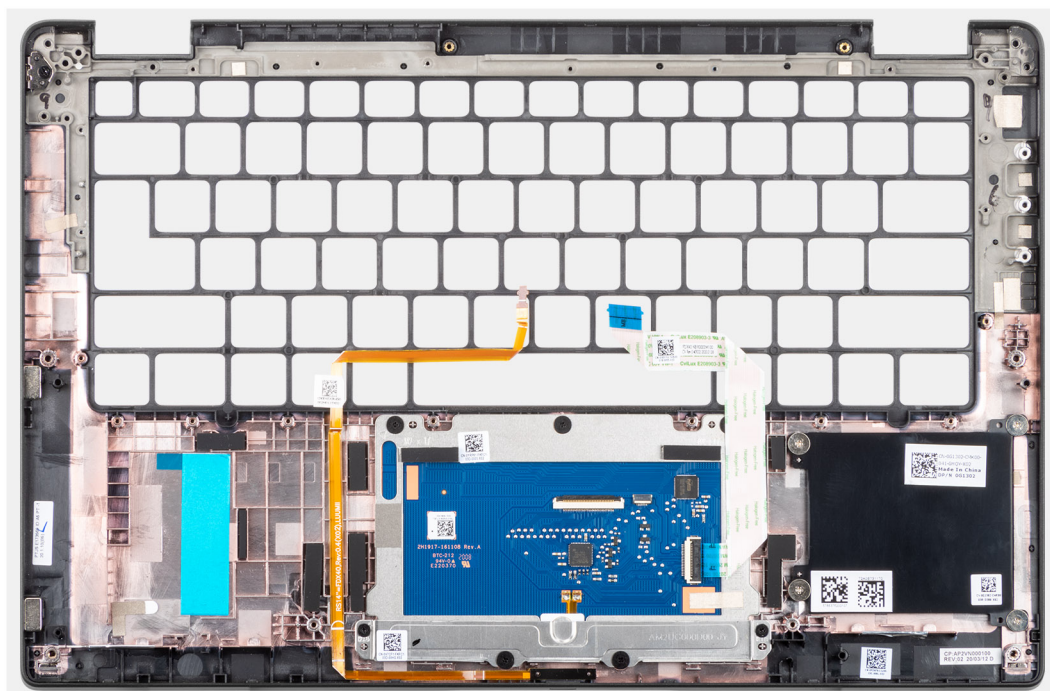
NOTE: System board can be disassembled without having to remove the heatsink assembly.

About this task

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

Steps

Once all the underlying components are removed, you are left with the palmrest assembly.



Next steps

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

1. Install the:
 - a. [Keyboard](#)
 - b. [System board](#)
 - c. [Power button](#)
 - d. [Speakers](#)
 - e. [Display assembly](#)
 - f. [Heatsink assembly](#)
 - g. [WWAN card](#)
 - h. [Solid state drive](#)
 - i. [Battery](#)
 - j. [Base cover](#)
2. Follow the procedure in [After working inside your computer](#).

Troubleshooting

Topics:

- [SupportAssist Onboard Diagnostics](#)
- [Basic troubleshooting](#)
- [CROSH](#)
- [CROSH commands](#)
- [Chrome commands](#)
- [Commonly used CROSH command](#)
- [Reset Chromebook](#)
- [Recovery Chromebook](#)

SupportAssist Onboard Diagnostics

Dell Latitude 7410 Chromebook Enterprise is shipped with SupportAssist onboard diagnostics.

The Dell SupportAssist diagnostics perform a complete check of your system hardware. SupportAssist is embedded in the BIOS and is launched by the BIOS internally (from the advanced boot menu). The embedded system diagnostics provide a set of options for particular devices or device groups allowing you to:

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

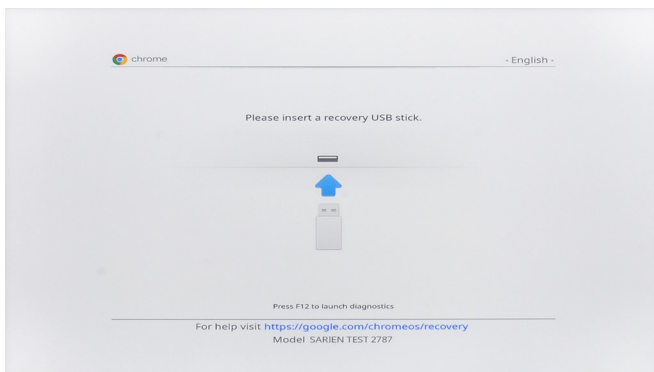
Launching SupportAssist

This section outlines how to launch SupportAssist on Latitude 7410 Chromebook Enterprise.

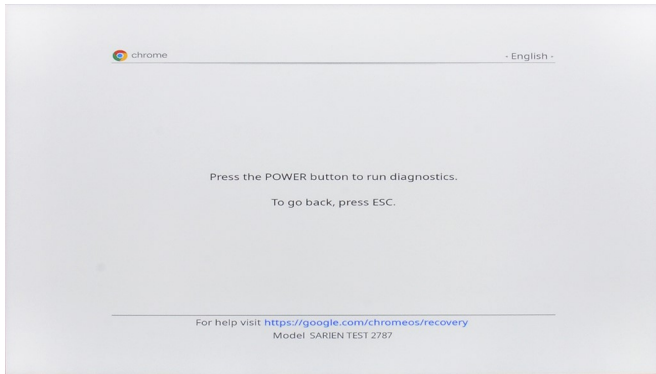
Preparing Dell Latitude 7410 Chromebook Enterprise for SupportAssist

Connect the power adapter to the system and keep the power adapter connected throughout the procedure.

1. Press and hold <Power> + <F2> for two seconds to boot into Chrome OS recovery menu.
2. When the screen appears, press <F12>. The system will reboot.

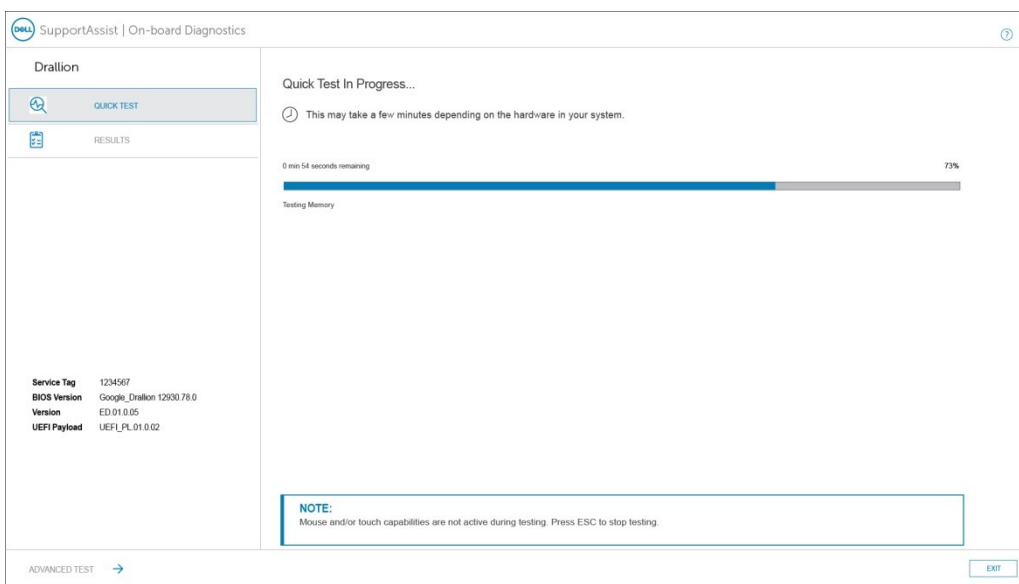


3. When the system powers back on, press <Power>. The system will reboot to launch SupportAssist.

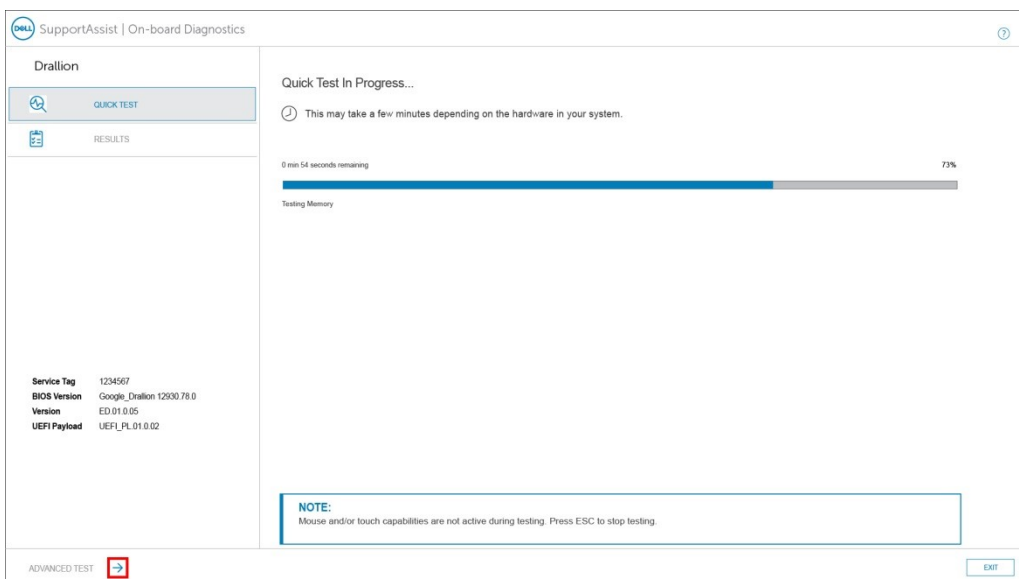


SupportAssist User Interface

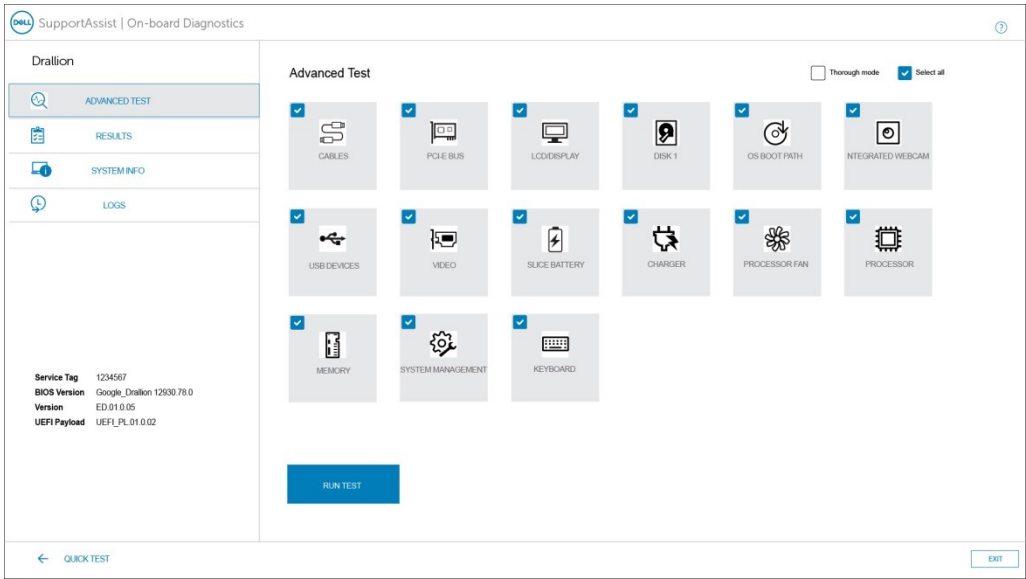
1. Upon entering SupportAssist, SupportAssist will launch system scan (quick test) automatically. If you need to test specific components, press <Esc> to abort the system scan.



2. Click the arrow icon to proceed to the Advanced page to test selected components.



3. Select and test specific components from the Advanced page.



Basic troubleshooting

This page contains all the information for Dell Latitude 7410 Chromebook Enterprise basic troubleshooting

- NOTE:** Refer to [Google Help Center](#) for the online troubleshooter.
- NOTE:** [Resetting](#) the Chromebook, also known as Powerwash, can be attempted before [Recovering](#) the Chromebook. Recovering the Chromebook is the last resort.

Power issues

Table 7. Power issue

Power issues	
Issue	Possible solutions
Chromebook would not Power On	If the Chromebook will not turn on, follow these steps: - Remove all external devices. - If the Chromebook starts, reconnect devices one at a time while restarting the computer to figure out which device is causing the problem. You are done. - If the Chromebook still does not start or exhibits the same problem, do not reconnect anything, and continue troubleshooting. - The battery life might be too low. Plug the Chromebook into the AC adapter and let it charge for at least an hour and try turning it on again. NOTE: When a new Chromebook is used for the first time, the battery is still in shipping mode. To resolve this issue, turn off the Chromebook and plug in the AC adapter and turn on the Chromebook again. - Depending on the Chromebook you have, you may see a power indicator light close to the charging port. If you have let the Chromebook charge and the light is not coming on, perform a hard reset. NOTE: You can perform a hard reset by pressing Refresh + Power. - Use a different AC adapter with the same power voltage.

Table 7. Power issue (continued)

Power issues	
	5. Remove the AC adapter, and turn on with the battery power only.

Display issue

Table 8. Display issue

Display issue	
Issue	Possible solutions
Screen is Blank	If the Chromebook's screen is blank, try the following troubleshooting steps to resolve the issue, checking to see if the screen turns on after each step: 1. Make sure the Chromebook is on. If you are using the battery, plug the Chromebook in and press the power button. 2. Restart the Chromebook by holding the power button down until the device turns off, then turn it back on again. 3. Reset or Recover the Chromebook.

Audio, screen, and camera issues

Table 9. Audio, screen, and camera issues

Audio, screen, and camera issues	
Issues	Possible solutions
Audio issues	If you hear static, or the volume from the speakers is low when attempting to listen to audio: 1. Make sure the device is not muted. Try adjusting the volume. 2. Try rebooting the Chromebook. 3. Try playing audio from various sources, including YouTube and audio files stored locally on the Chromebook. If the speakers are not responding when attempting to listen to audio: 1. Unplug the device from all cables (USB, headphones, and displays). 2. Try playing audio from various sources, including YouTube and audio files stored locally on the Chromebook. 3. Try rebooting the Chromebook. 4. If audio still does not respond, try to Reset or Recover the Chromebook.
Screen issues	If the screen is not operating properly (images are too dark or no image is appearing): 1. Try adjusting the brightness with the brightness keys at the top of the keyboard. 2. In the status area in the bottom-right of the screen, check the display and make sure there are no issues with a mirrored or extended display. 3. Try rebooting the Chromebook 4. If the screen issues persist, try to Reset or Recover the Chromebook.
Camera issues	If the camera is not operating properly (blurry images or poor performance):

Table 9. Audio, screen, and camera issues (continued)

Audio, screen, and camera issues	
	1. Check that the camera is not being blocked or covered by a privacy screen or other obstruction. 2. Try using different apps that use the camera. Try a Google+ Hangout or the onboard camera app 3. Try rebooting the Chromebook 4. If the camera issues persist, try to Reset or Recover the Chromebook.

Bluetooth issue

Table 10. Bluetooth issue

Bluetooth issue	
Issue	Possible solutions
Bluetooth issues	If you run into issues while attempting to pair or use a Bluetooth device with the Chromebook, try the following steps to resolve the issue: 1. First, make sure that the Bluetooth device you are trying to pair is supported by the Chromebook. 2. Try disabling and re-enabling Bluetooth connectivity from the status area in the lower-right corner. 3. Try restarting the Chromebook. 4. If you are still encountering issue with bluetooth, try to Reset or Recover the Chromebook.

Touchpad and Hotkeys issues

Table 11. Touchpad and hotkeys issues

Touchpad / Hotkeys issues	
Issue	Possible solutions
Touchpad not responding	If the touch pad has stopped responding, try the following steps to resolve the issue: Try moving the cursor after each step: 1. Tap the Esc key several times. 2. Drumroll the fingers across the touch pad for a few seconds. 3. Restart the Chrome OS by holding down the power button until the device turns off, and then turn it back on again. 4. If the cursor still does not move when using the touch pad, try logging in from the Guest account using the tab key to navigate. 5. If users experience touch pad issues with the account that is not the owner (primary) account, delete the user account and re-create it. Again, use the tab key to navigate. 6. If none of the above steps work, try to Reset or Recover the Chromebook.
Top row of keys (Hotkeys) not responding	If a hotkey (like the volume or brightness keys) are not responding, try the following troubleshooting steps, making sure to test the keys after each one: 1. If the affected key is volume or brightness, check to make sure you are not at the upper or lower limit for that setting. 2. If the backward or forward buttons do not work, check that the same icons in a web browser are not grayed out. For

Table 11. Touchpad and hotkeys issues (continued)

Touchpad / Hotkeys issues	
	example, if the back button on a web page is grayed, this is because the browser is not aware of a page to move backward to. - Restart the Chrome OS by holding down the power button until the device turns off, and then turn it back on again. - Try using the keys in the Guest account. - If users experience hotkey issues with the account that is not the owner (primary) account, delete the user account and re-create it. - If none of the above steps work, try to Reset or Recover the Chromebook.

Chrome OS issue

Table 12. Chrome OS issue

Chrome OS issues	
He's Dead, Jim! error message	If the Chromebook becomes slow or unresponsive, and the He's Dead, Jim! error message appears, the system could be running low on memory. NOTE: If you terminated the process using Google Chrome's Task Manager, the system's task manager, or with a command line tool, this message will appear as well. - If the page was not ended intentionally, reload the page to continue. If the message continues to appear, try closing inactive tabs or other programs to free up more memory. - If issue persists, please see He's Dead, Jim! from Google knowledge base.
Chrome OS is missing or damaged	If the Chromebook does not start and displays the message, Chrome OS is missing or damaged. Please insert a recovery USB stick into the USB ports on the device: Perform a system recovery. See performing Recover Chromebook for more information.
Chrome OS stops responding and nothing moves on the computer display	If the Chrome OS stops responding and nothing moves on the computer display: - Turn off the computer. - Disconnect all peripheral devices, and remove all USB devices and media cards. - Disconnect the AC adapter. - Press and hold the power button for 10 seconds. - Reconnect the AC adapter, and turn on the system. - If issue persists, please perform a Reset or Recover the Chromebook.
Lost / Forget Sign in password (Chrome OS)	If you lost/forget the sign-in password to the Chromebook: - Check if this is a managed device (Enterprise enrolled device). - If this is a managed device, please contact the administrator to have them reset the password via Google Admin Console. - If this is not a managed device, please proceed with the following steps:

Table 12. Chrome OS issue (continued)

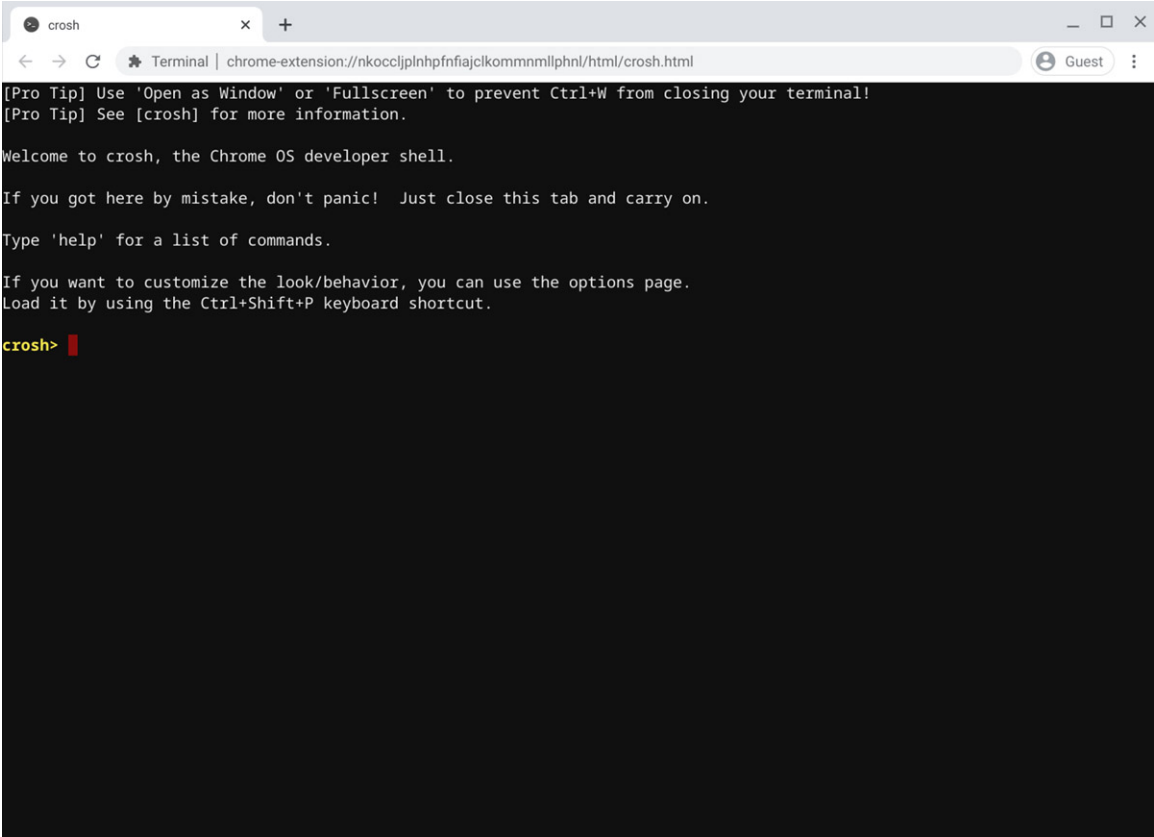
Chrome OS issues	
	2. Sign in as guest or use a different PC. 3. Open an internet browser, and navigate to https://www.google.com/accounts/recovery/ 4. Select I do not know my password, and then enter the email address that you use to sign in to Google. 5. Click Continue and follow the on-screen instructions to reset the password.
Other Chromebook lock up or freeze symptoms that are not listed here	If none of the above symptoms match the Chromebook's issue, refer to Google Help Center for the online troubleshooter and more help.

CROSH

This topic covers the information that you need to know for the Chrome Shell (CROSH). CROSH and the Google Chrome URL commands provide some troubleshooting tools, information, and advanced settings.

The Chrome OS does not support ePSA, Dell BIOS, the F12 boot menu, or DellConnect. There are no preboot diagnostics. All troubleshooting must be done inside the OS. Chrome Shell (CROSH) and the Chrome URL commands provide some troubleshooting tools, information, and advanced settings. CROSH is a command line interface similar to the Linux BASH or Windows command (cmd.exe) terminals. Chrome OS is based on Linux, but CROSH does not recognize most Linux commands. The most useful commands for troubleshooting are memory test, storage_test_1, storage_test_2, ping, and tracepath. Ping works differently than it does in Windows. By default, it repeats until you press **<Ctrl> + <C>**, and it does not show any statistics. The tracepath command is similar to the Windows traceroute command. A detailed explanation of the commands can be viewed below, by typing help, or help_advanced in CROSH.

1. Open the Chrome browser.
2. Press **<Ctrl> + <Alt> + <T>** The interface appears as shown in the screenshot below:



3. Type in the CROSH command for diagnostics. Type **'help'** for a list of available commands. Type **help_advanced** to display a complete list of commands for debugging purposes

Alternately, refer to CROSH Commands for the list of the CROSH commands available for diagnostics.

CROSH commands

The table below lists the available commands in Chrome Shell (CROSH).

Table 13. Help commands

Command	Purpose
exit	Exits the CROSH Shell.
help	Displays this help.
help_advanced	Displays the help for more advanced commands, which are used for debugging.
ping	[-c count] [-i interval] [-n] [-s packetsize] [-W waittime] — Sends ICMP ECHO_REQUEST packets to a network host. If it is "gw", then the next hop gateway for the default route is used. It works like the ping command on other operating systems. Press <Ctrl> + <C> to stop the ping process or halt any other command in CROSH.
ssh	[optional args...] — Starts the ssh subsystem if invoked without any arguments. "ssh <user> <host>", "ssh <user> <host> <port>", "ssh <user>@<host>". or "ssh <user>@<host> <port>" connect without entering the subsystem
ssh_forget_host	Removes a host from the list of known ssh hosts. This command displays a menu of known hosts and prompts for the host to forget.
top	Sets the chaps debug logging level. No arguments start verbose logging

Table 14. Advanced help command

Command	Purpose
battery_test[<test length>]	Tests the battery discharge rate for a given number of seconds. No argument defaults to a 300 s test.
bt_console [<agent capability>]	Enters a Bluetooth debugging console. The Optional argument specifies the capability of a pairing agent the console provides; see the Bluetooth Core specification for valid options.
chaps_debug [start stop <log_level>]	Sets the chaps debug logging level. No arguments will start verbose logging.
connectivity	Shows connectivity status.
experimental_storage<status enable disable>	Enables or disables experimental storage features.
ff_debug [<tag_expr>] [--help] [--list_valid_tags] [--reset]	Adds and removes flimflam debugging tags.
memory_test	Performs extensive memory testing on the available free memory.
modem <command> [args...]	Interacts with the 3G modem. Run modem help for detailed help.
modem_set_carrier carrier-name	Configures the modem for the specified carrier.
network_diag[--date] [--link] [--show-macs] [--wifi] [--help] [--wifi-mon] <host>	Performs a suite of network diagnostics and saves a copy of the output to your download directory
network_logging <wifi cellular ethernet>	Enables a predefined set of tags useful for debugging the specified device.
p2p_update [enable disable]	Enables or disables the peer-to-peer (P2P) sharing of updates over the local network. This will both attempt to get updates from other peers in the network and shares the downloaded updates with

Table 14. Advanced help command (continued)

Command	Purpose
	them. Run this command without arguments to see the current state.
rlz <status enable disable>	Enables or disables RLZ.
rollback	Attempts to roll back to the previous update cached on your system. Only available on non-stable channels and non-enterprise enrolled devices. Please note that this will power wash your device.
route [-n] [-6]	Displays the routing tables.
set_apn [-n <network-id>] [-u <username>] [-p <password>] <apn>	Sets the APN to use when connecting to the network specified by <network-id>. If <network-id> is not specified, use the network-id of the currently registered network.
set_apn - c	Clears the APN to be used, so that the default APN is used instead.
set_arpgw <true false>	Turns on the extra network state checking to make sure the default gateway is reachable.
set_cellular_ppp [-u <username>] [-p <password>]	Sets the PPP username and/or password for an existing cellular connection. If neither -u nor -p is provided, this shows the existing PPP username for the cellular connection.
set_cellular_ppp -c	Clears any existing PPP username and PPP password for an existing cellular connection.
sound <command> <argument>	Low level sound configuration. Can be used to play/record audio samples and enable beam forming on Pixel. sound beamforming <on off> will enable/disable the feature. sound record [duration] will start recording. sound play <filename> plays the recorded audio samples
storage_status	Reads storage device SMART health status, vendor attributes, and error logs.
storage_test_1	Performs a short offline SMART test.
storage_test_2	Performs an extensive readability test.
syslog <message>	Logs a message to system log.
tpcontrol{status taptoclick [on off] sensitivity [1-5] set <property>< value>} tpcontrol {syntp [on off]}	Allows the user to manually adjust advanced touchpad settings.
tracpath [-n] <destination>[/port]	Traces the path/route to a network host.
update_over_cellular [enable disable]	Enables or disables the auto updates over cellular networks. Run without arguments to see the current state.
upload crashes	Uploads available crash reports to the crash server.
wpa_debug [<debug_level>] [--help] [--list_valid_level] [--reset]	Sets the wpa_supplicant debugging level.
xset m [acc_mult[/acc_div] [thr]] xset m default	Tweaks the mouse acceleration rate.
xset r rate [delay [rate]]	Tweaks the autorepeat rates. The delay is the number of milliseconds before autorepeat starts. The rate is the number of repeats per second.
xset r [keycode] <on off>	Turns autorepeat on/off. If a keycode is specified, it affects only that key. If not specified, it affects global behavior.

Chrome commands

Chrome:// pages contain experimental features, diagnostic tools, and detailed statistics. They are hidden in Chrome's user interface. **Chrome://about** page lists all Chrome's internal pages. To view all the commands, type **chrome://about** in the Chrome browser URL as shown below:

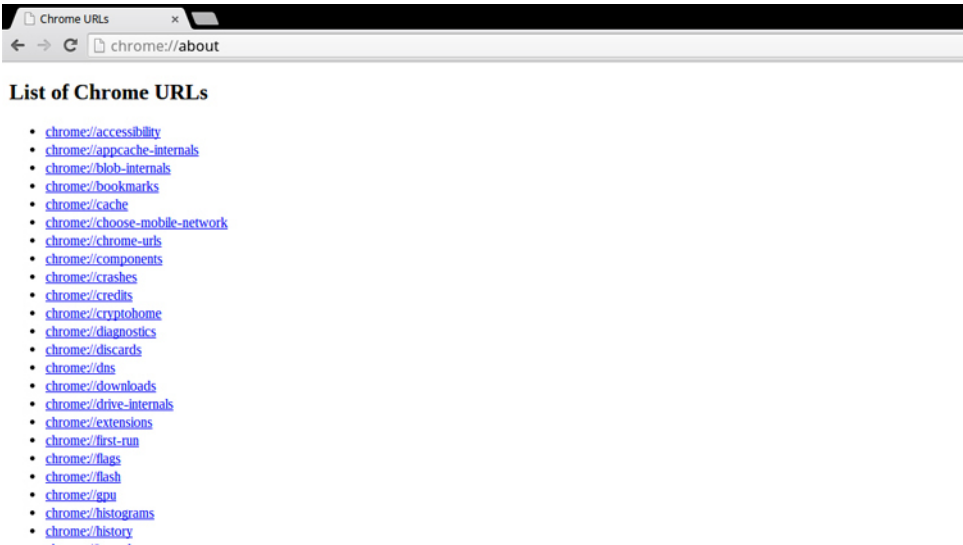
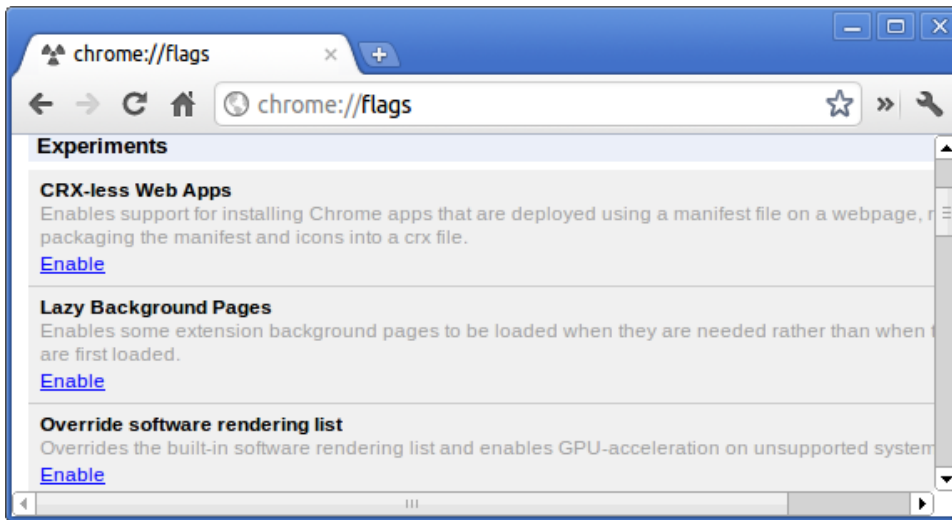


Table 15. Chrome browser shortcuts

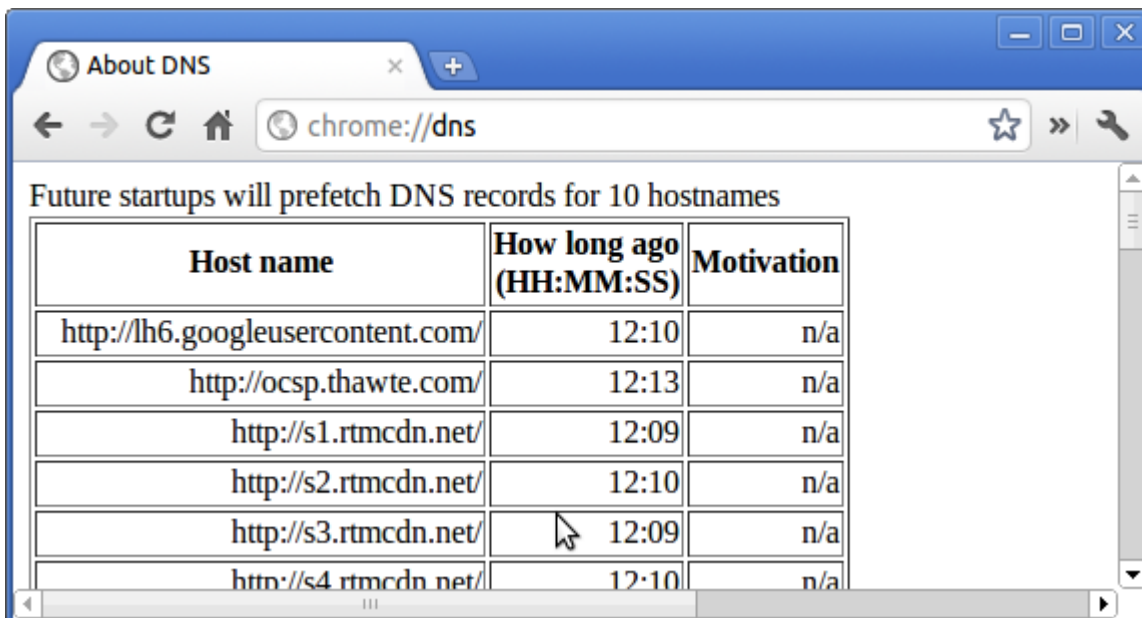
Purpose	Browser Shortcut	Explanation
System Information	chrome://system/	"Who am I".. BIOS version, and so on
Basic Connectivity Diags	chrome://diagnostics/	Test for NIC and Internet connection
Chrome Information	chrome://version	More "Who am I" type of stuff
Create Recovery USB Stick	chrome://imageburner/	Google's version of DBAR/DBRM
Chrome Flags	chrome://flags	Experimental features beyond the scope of what Dell supports
Memory Troubleshooting	chrome://memory	View running processes and memory utilization
Module Load	chrome://conflicts	Shows conflicts of all modules loaded by Chrome
Chrome Sync Status	chrome://syncchrome://sync-internals	Allows troubleshooting of connected accounts
Connectivity Troubleshooting	chrome://net-internals	Comprehensive network/connectivity diagnostics, including DNS analysis, Waterfall and Bandwidth diagnostics, and so on
Histogram	chrome://histograms	Actual work and I/O audit
Credits	chrome://credits	References to all module/libs contributions and their respective wiki/license URLs
Crash Reporting	chrome://crashes	Shows detailed crash report, if the feature was enabled
Apps RAM Utilization	chrome://appcache-internals	Detailed memory usage for apps/extensions, especially handy for 2 GB Chromebooks

Following are the 12 most helpful chrome:// commands that you should know:

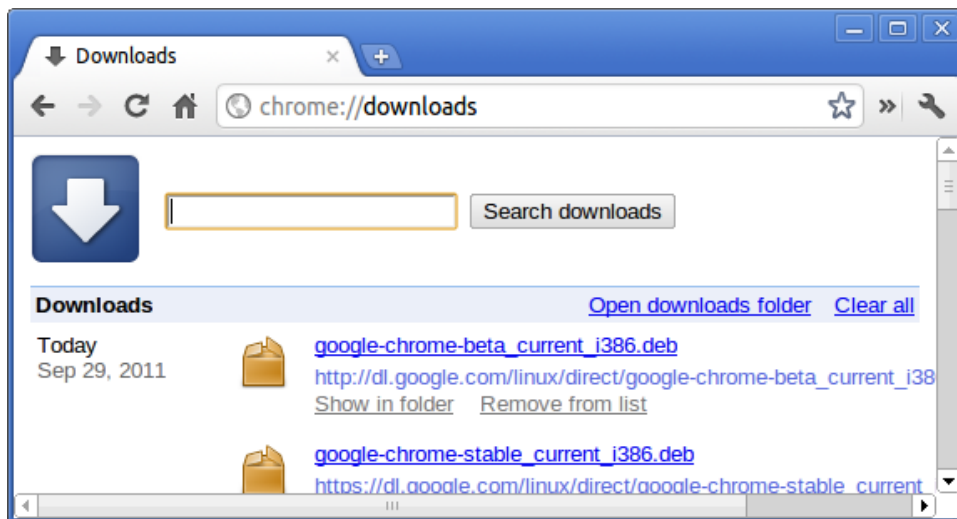
1. **chrome://flags** : From here you can enable some of the experimental features that are hidden in the Google Chrome browser. Please note that as mentioned on this page, since these are experimental, these might not work as expected and might cause issues. Enable these features, and use it at your own risk.



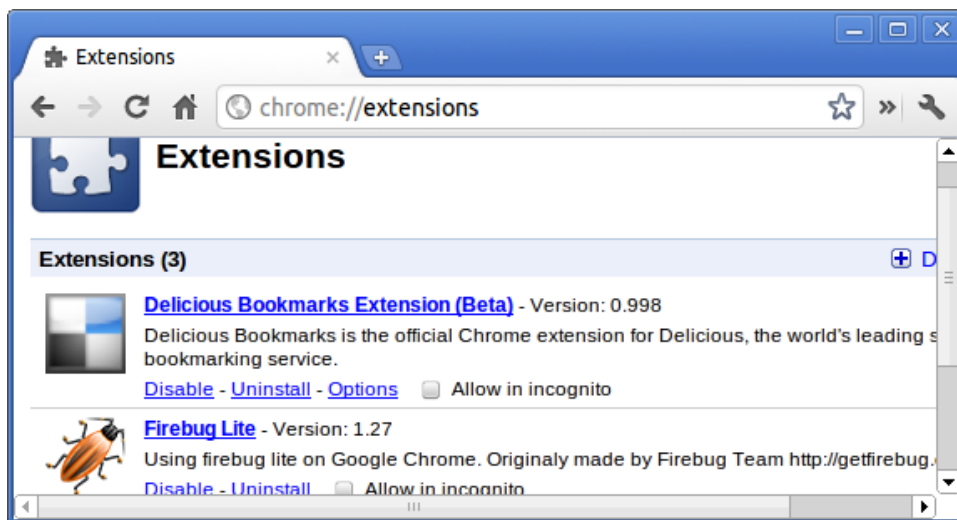
2. **chrome://dns**: This displays the list of host names for which the browser will pre-fetch the DNS records.



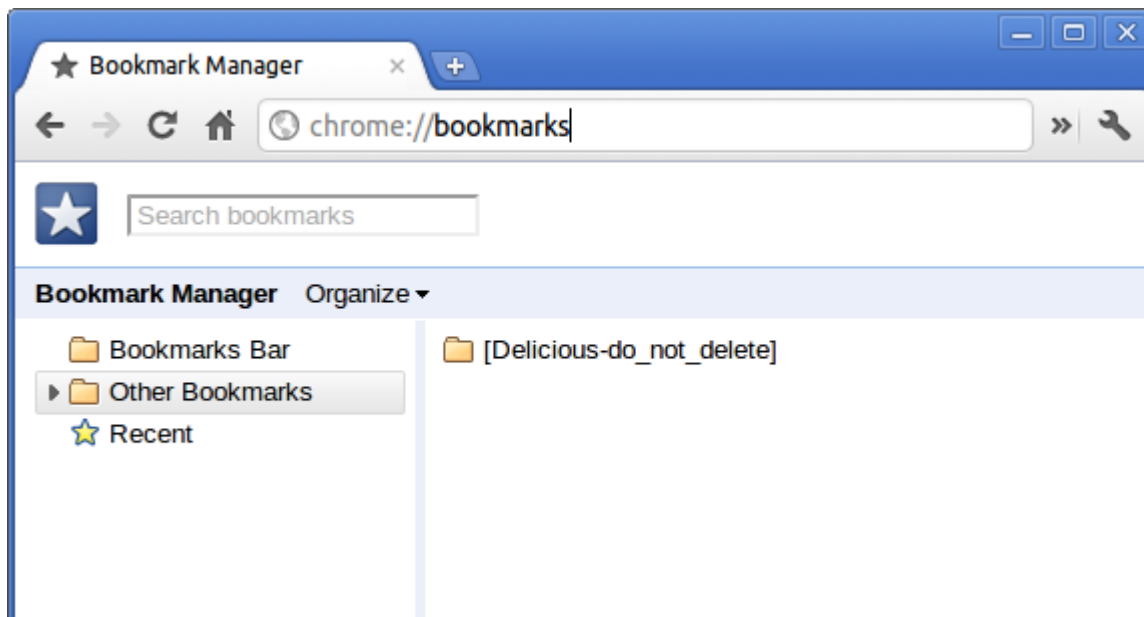
3. **chrome://downloads**: This is also available from the Menu > Downloads. Shortcut key is Ctrl+J.



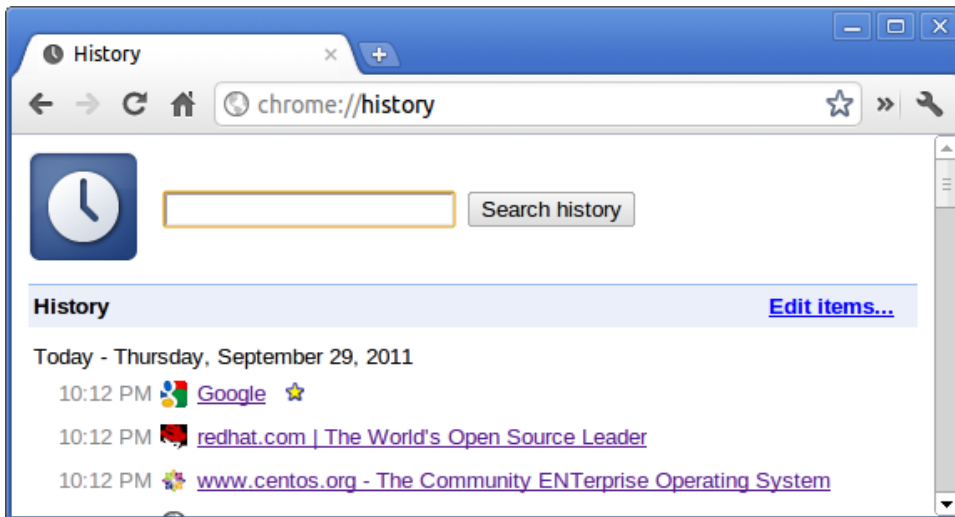
4. **chrome://extensions:** This is also available from the Menu > Tools > Extensions.



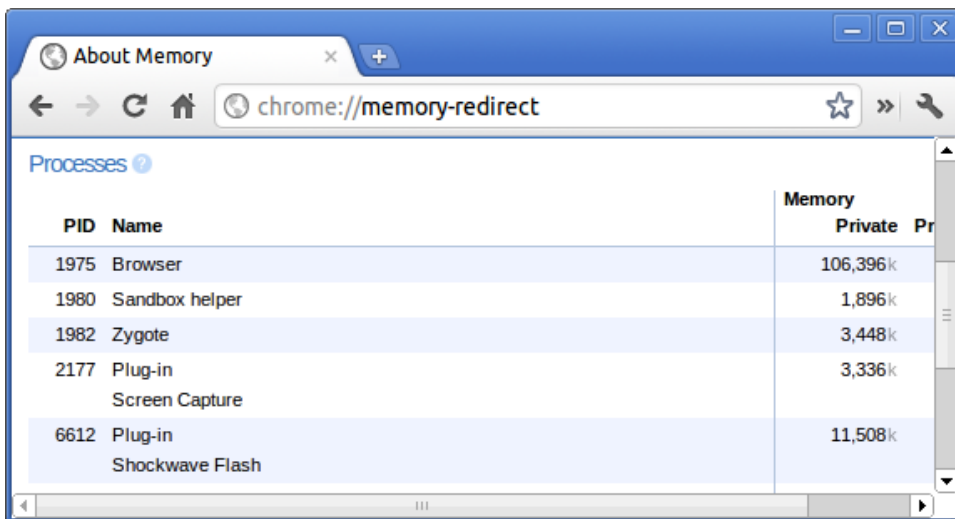
5. **chrome://bookmarks:** This is also available from the Menu > Bookmarks > Bookmark Manager. Short cut key is Ctrl+Shift+O.



6. **chrome://history:** This is also available from the Menu > History. Short cut key is Ctrl+H.

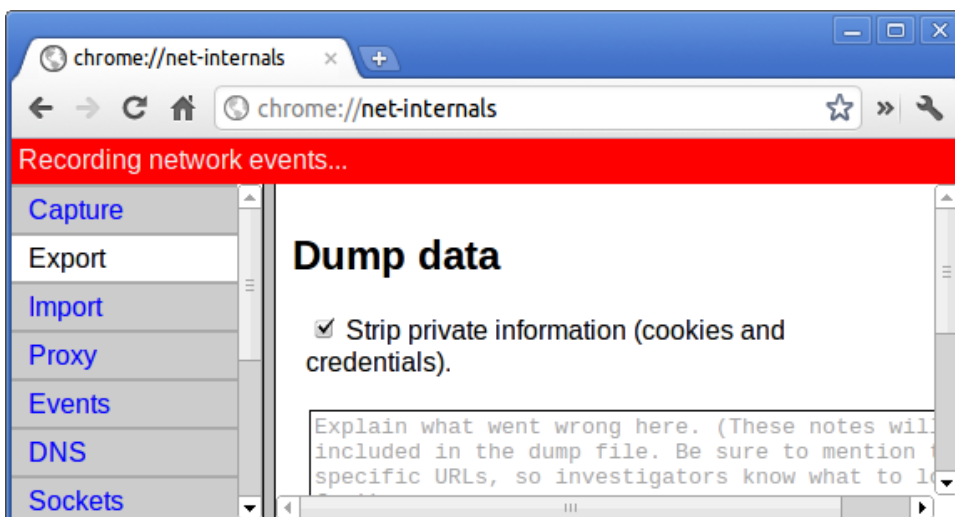


7. **chrome://memory:** This will redirect to "chrome://memory-redirect/". This will display the memory used by the Google Chrome browser. This also displays all the process related to browser with their PID, process name, and the memory it takes.

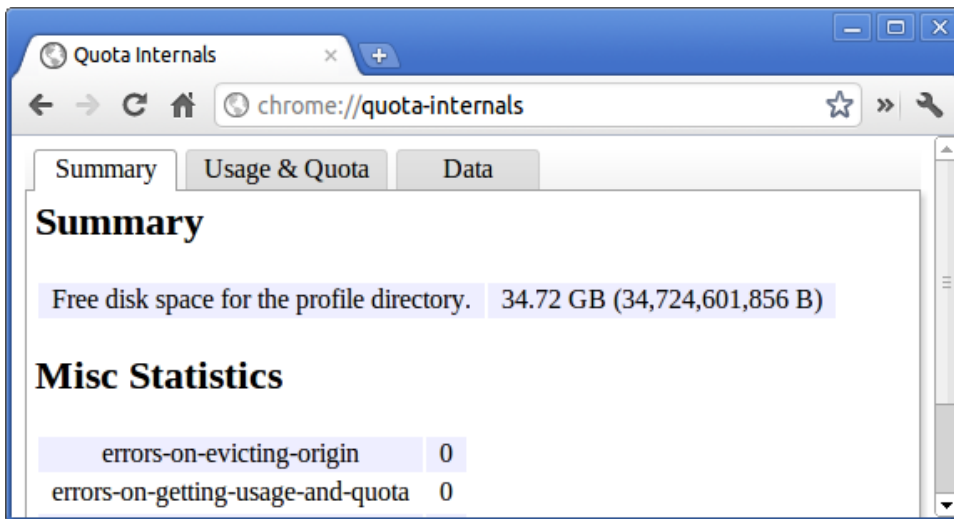


8. **NOTE:** Net-internals events viewer and related functionality has been removed. Please use Chrome://net-export to save netlogs and the external [Catapult netlog_viewer](#) to view them.

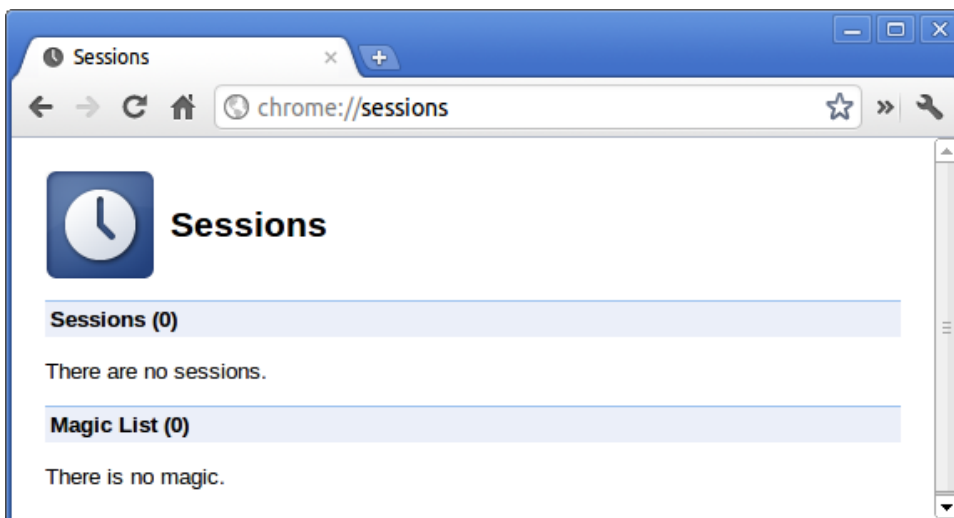
chrome://net-internals: This displays all networking related information. Use this to capture network events generated by the browser. You can also export this data. You can view DNS host resolver cache. One of the important features in this feature is "Test". If a URL failed to load, you can go to "chrome://net-internals" > click on "Tests" tab > type that URL which failed, and click on "Start Test", which does some test and report you why that URL failed. chrome://plugins/.



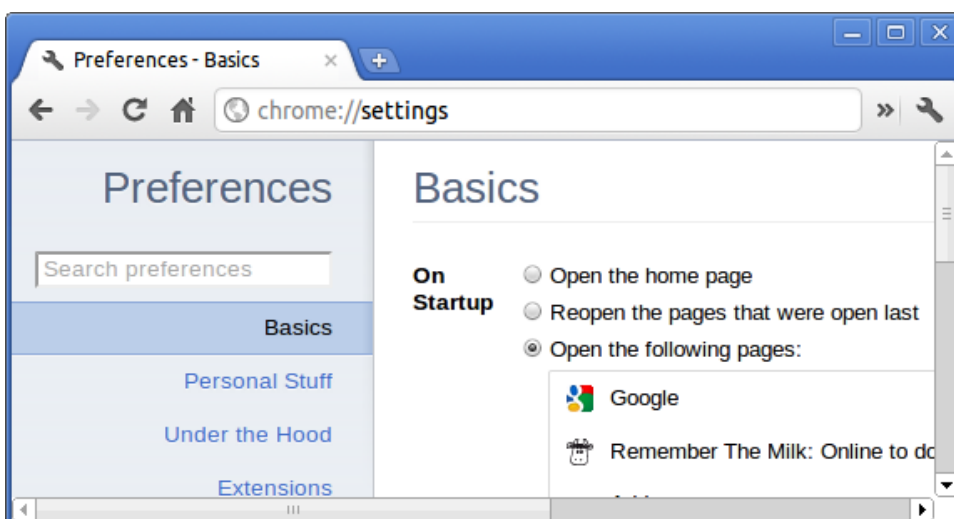
9. **chrome://quota-internals:** This gives information about the disk space quote used by the browser, including the breakdown of how much space the individual websites took under temporary files.



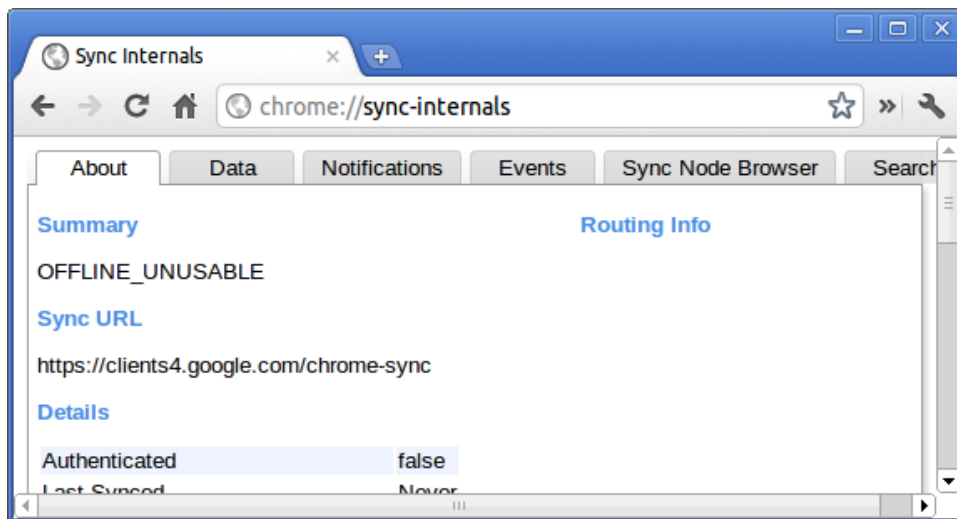
10. **chrome://sessions:** This displays the number of sessions and magic list that are currently running.



11. **chrome://settings:** This is also available from the Menu > Options (on Windows), and Menu > Preferences (on Linux). From here you can control various browser related settings.



12. **chrome://sync-internals:** This gives information about the Chrome sync feature, including the Sync URL used by Google, and sync statistics.



Commonly used CROSH command

This page contains information about the most commonly used CROSH commands to diagnose the Dell Chromebook 11 (3189) Chromebook 11 (3180).

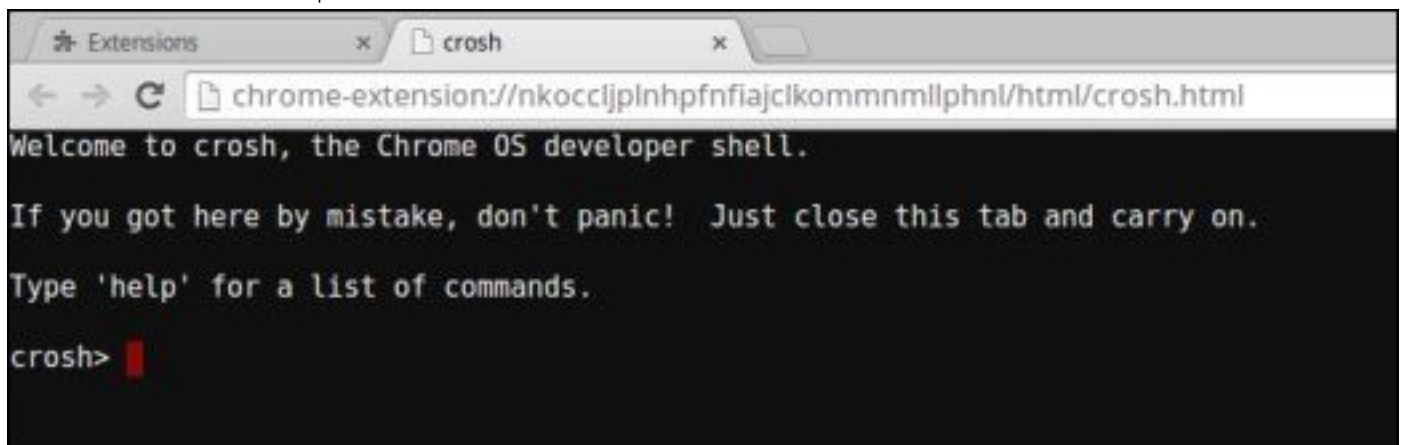
Below are some of the most commonly used CROSH commands to troubleshoot a hardware issue.

NOTE: CROSH `storage_test_1` and `storage_test_2` are not supported on the eMMC storage device.

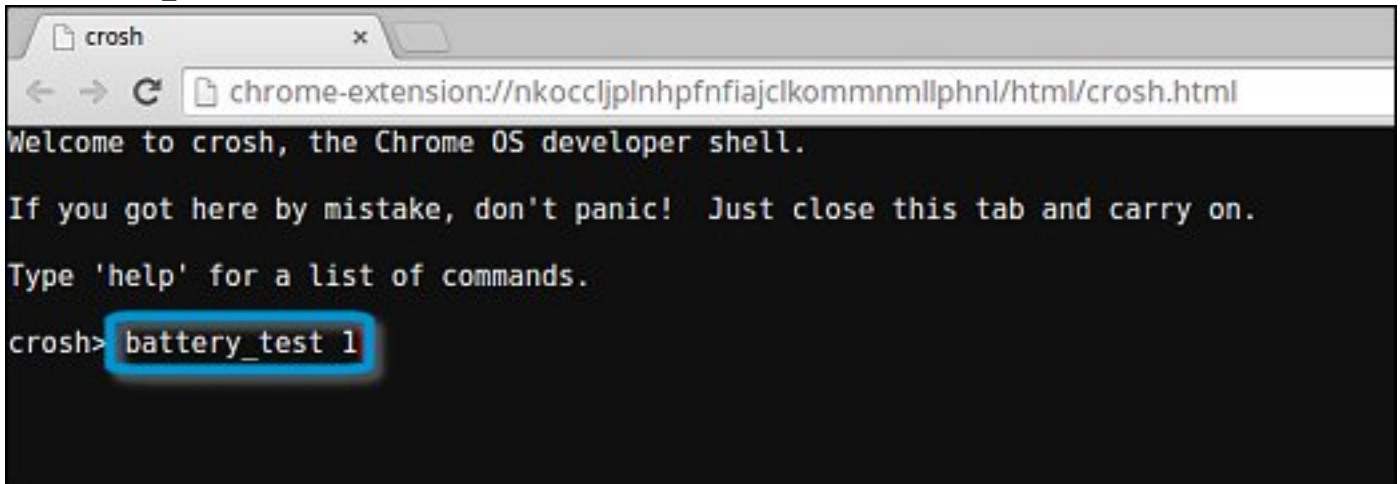
Check battery charging status

The Chrome Shell (CROSH) includes a simple battery health diagnostic test. This is to confirm that the battery is charging and to check on the battery health and discharge rate. Follow the instruction provided to check on the battery charging status:

1. Connect the AC adapter to the Chromebook and a power outlet.
2. Turn on, and sign in to the Chromebook.
3. Open the Chrome browser.
4. Press CTRL + ALT + T to open CROSH.

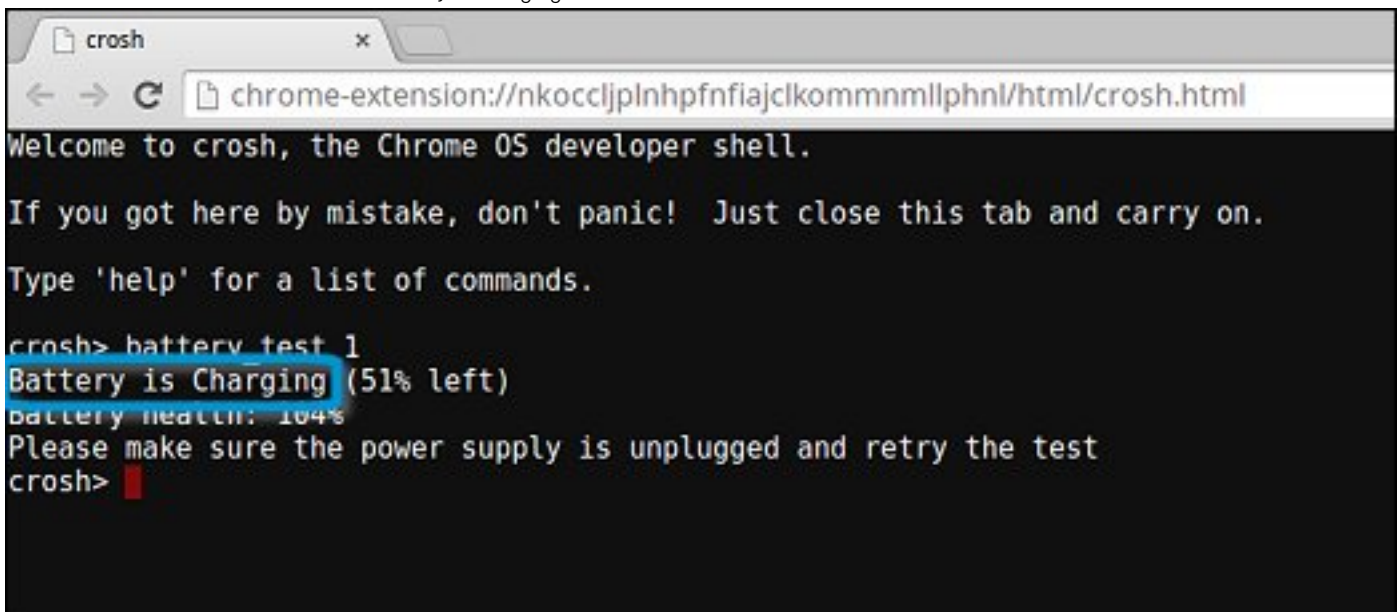


5. Type `battery_test 1` into CROSH, and then press **Enter**.



A screenshot of a web browser window with a single tab titled 'crosh'. The address bar shows 'chrome-extension://nkoccljplnhpfnfajclkommmnmlphnl/html/crosh.html'. The main content area displays the CROSH interface with the following text: 'Welcome to crosh, the Chrome OS developer shell.', 'If you got here by mistake, don't panic! Just close this tab and carry on.', and 'Type 'help' for a list of commands.' At the bottom, the prompt 'crosh>' is followed by the command 'battery_test 1', which is highlighted with a blue selection box.

6. Check the result to confirm that the battery is charging.



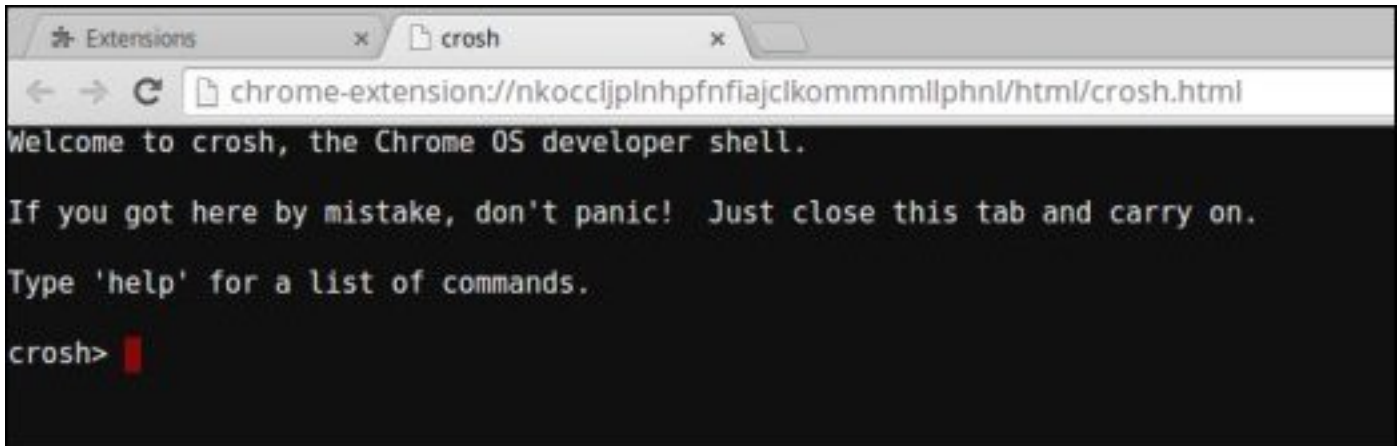
A screenshot of the same CROSH terminal window. The output of the 'battery_test 1' command is displayed: 'Battery is Charging (51% left)', 'battery health: 104%', and 'Please make sure the power supply is unplugged and retry the test'. The prompt 'crosh>' is followed by a red cursor. The text 'Battery is Charging (51% left)' is highlighted with a blue selection box.

Check battery health

Follow the steps to evaluate the health of the Chromebook battery, and check the discharge rate:

1. Disconnect the AC adapter from the Chromebook.
2. Turn on and sign in to Chromebook.
3. Open the Chrome browser.

4. Press CTRL + ALT + T to open CROSH.



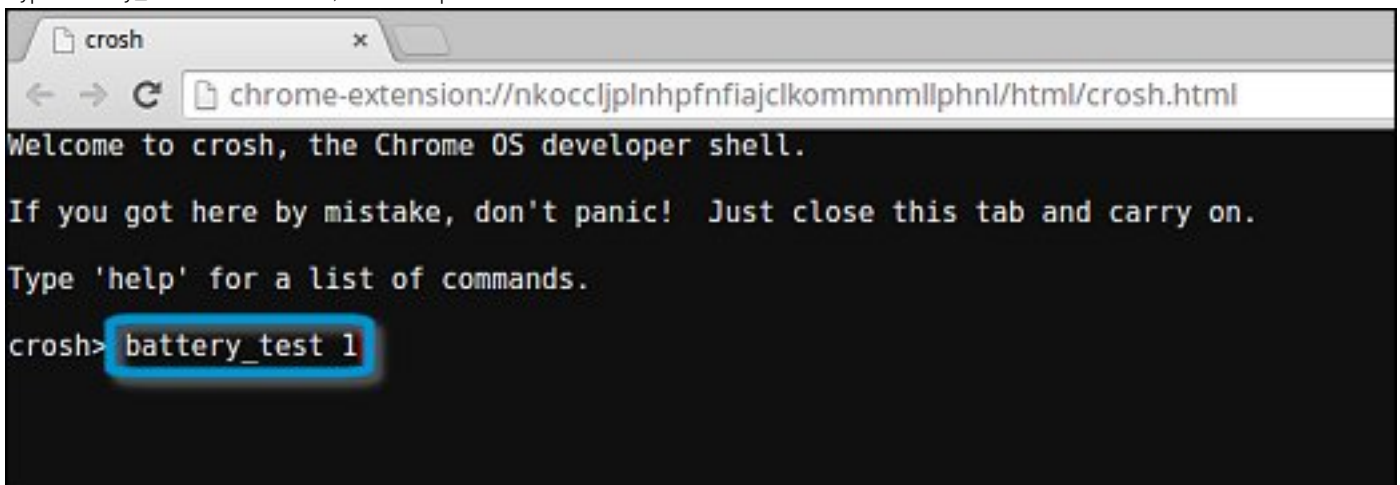
```
chrome-extension://nkoccljplnhpfnfajclkommmnmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

crosh>
```

5. Type battery_test 1 into CROSH, and then press Enter.



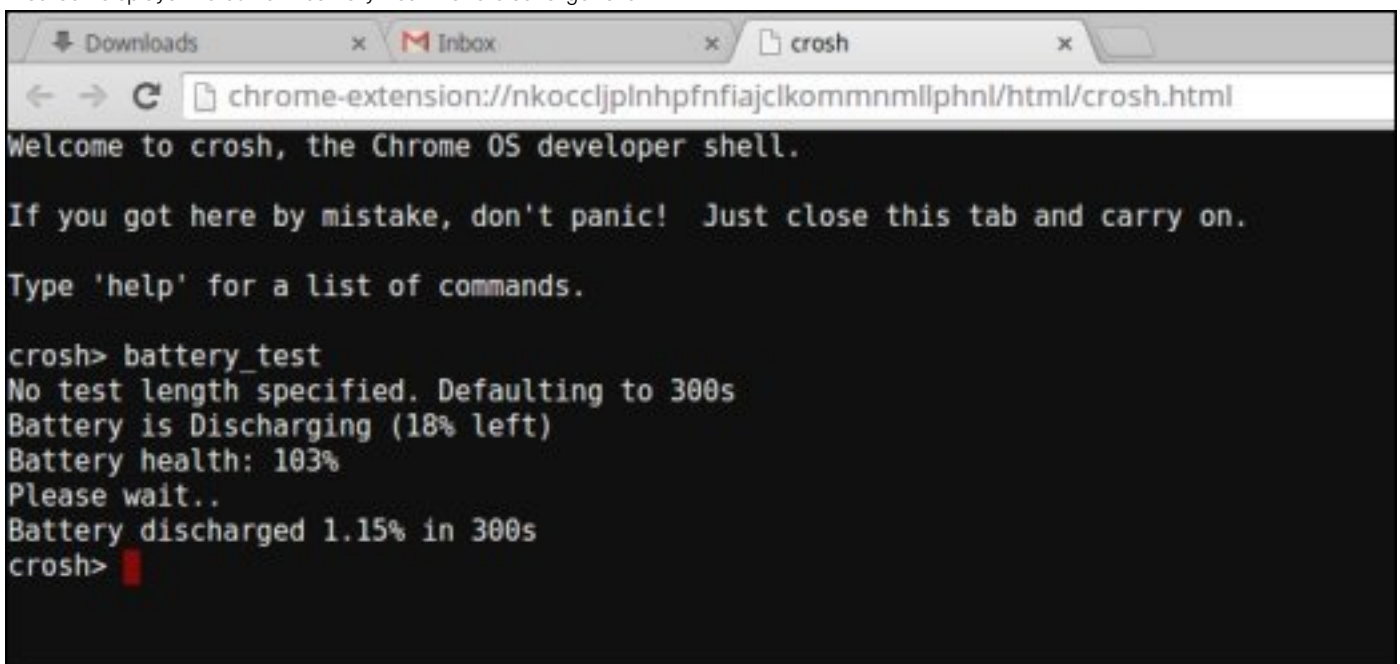
```
chrome-extension://nkoccljplnhpfnfajclkommmnmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

crosh> battery_test 1
```

6. A screen displays the current battery health and discharge rate.



```
chrome-extension://nkoccljplnhpfnfajclkommmnmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

crosh> battery_test
No test length specified. Defaulting to 300s
Battery is Discharging (18% left)
Battery health: 103%
Please wait..
Battery discharged 1.15% in 300s
crosh>
```

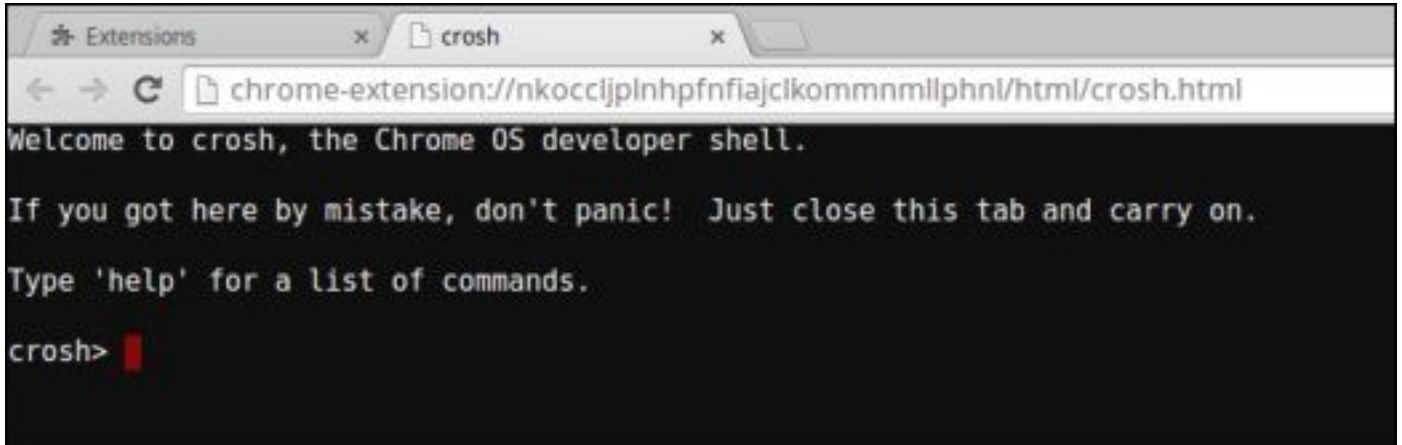
- If the Battery health percentage is greater than 50%, the battery is within the expected wear limits.
- If the Battery health percentage is equal to or less than 50% and the battery is less than a year old, the battery is outside expected wear limits and might need to be replaced.
- If the test results show that Battery is Unknown, the battery might need to be replaced.

Checking memory

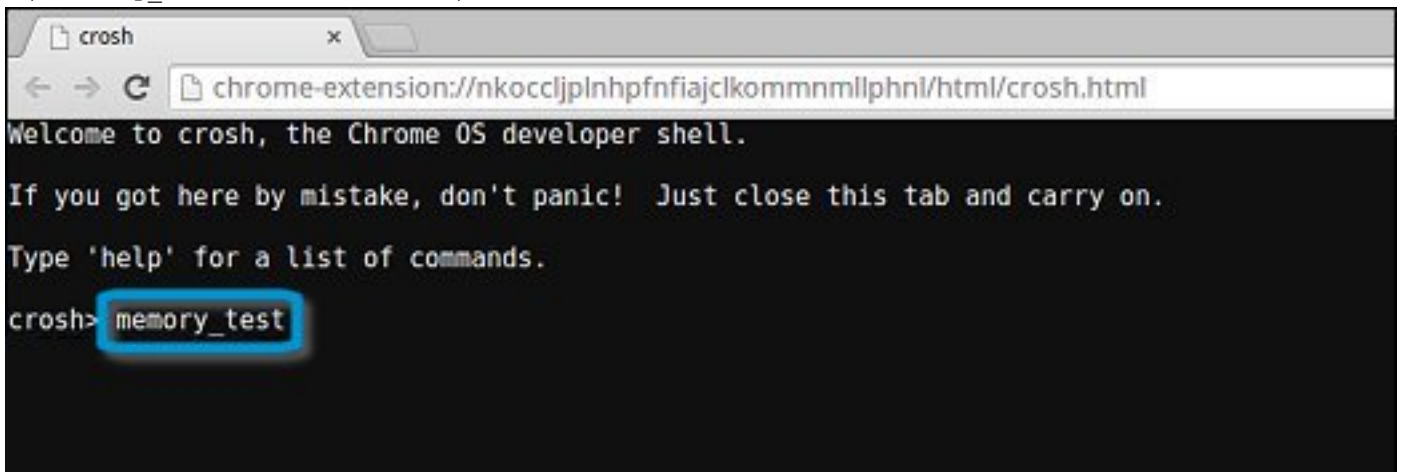
Follow the steps below to perform a memory check for Chromebook:

NOTE: This will approximately take 20 minutes to complete the test, and it also depends on the capacity of the memory.

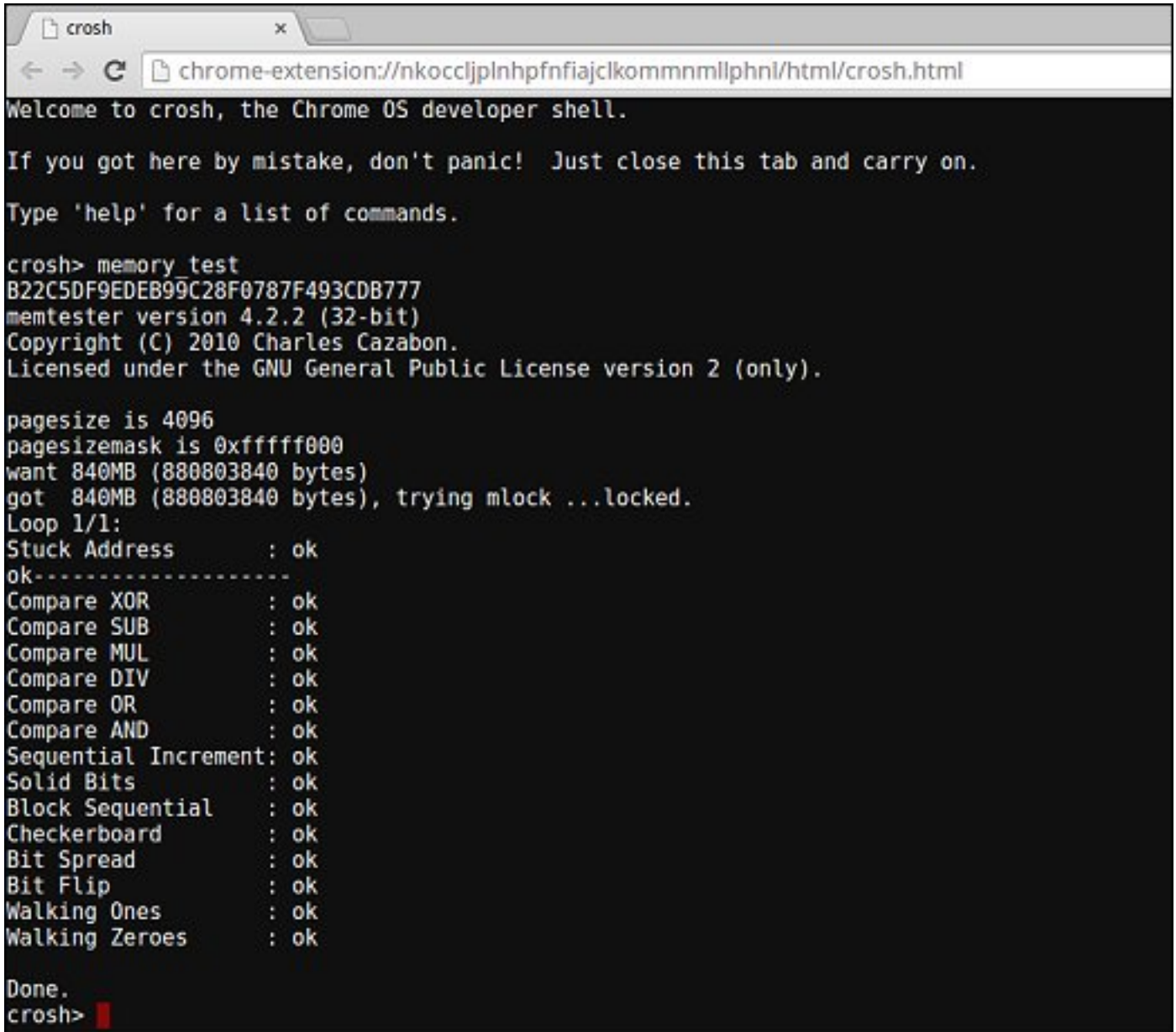
1. Turn on and sign in to Chromebook.
2. Open the Chrome browser.
3. Press CTRL + ALT + T to open CROSH.



4. Type `memory_test` into CROSH, and then press Enter.



5. A diagnostic screen displays the result of the memory test passed without any errors.

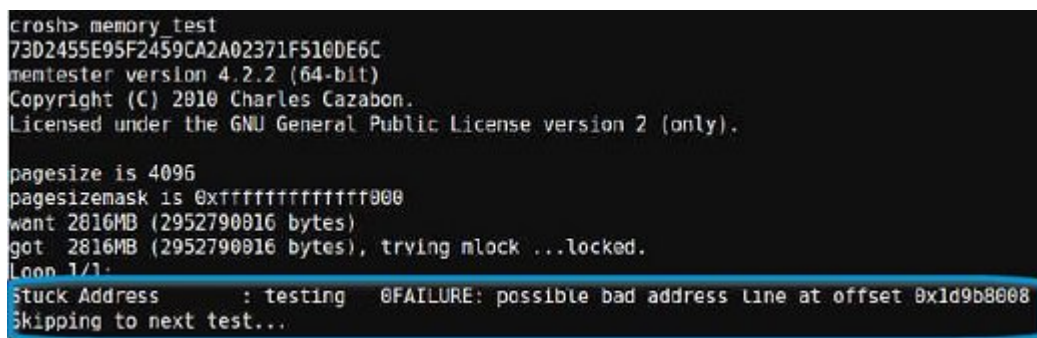


```
crosh> memory test
B22C5DF9EDEB99C28F0787F493CDB777
memtester version 4.2.2 (32-bit)
Copyright (C) 2010 Charles Cazabon.
Licensed under the GNU General Public License version 2 (only).

pagesize is 4096
pagesizemask is 0xfffff000
want 840MB (880803840 bytes)
got 840MB (880803840 bytes), trying mlock ...locked.
Loop 1/1:
Stuck Address      : ok
ok-----
Compare XOR        : ok
Compare SUB        : ok
Compare MUL        : ok
Compare DIV        : ok
Compare OR         : ok
Compare AND        : ok
Sequential Increment: ok
Solid Bits         : ok
Block Sequential   : ok
Checkerboard       : ok
Bit Spread         : ok
Bit Flip          : ok
Walking Ones      : ok
Walking Zeroes    : ok

Done.
crosh>
```

Example of a memory test failure.



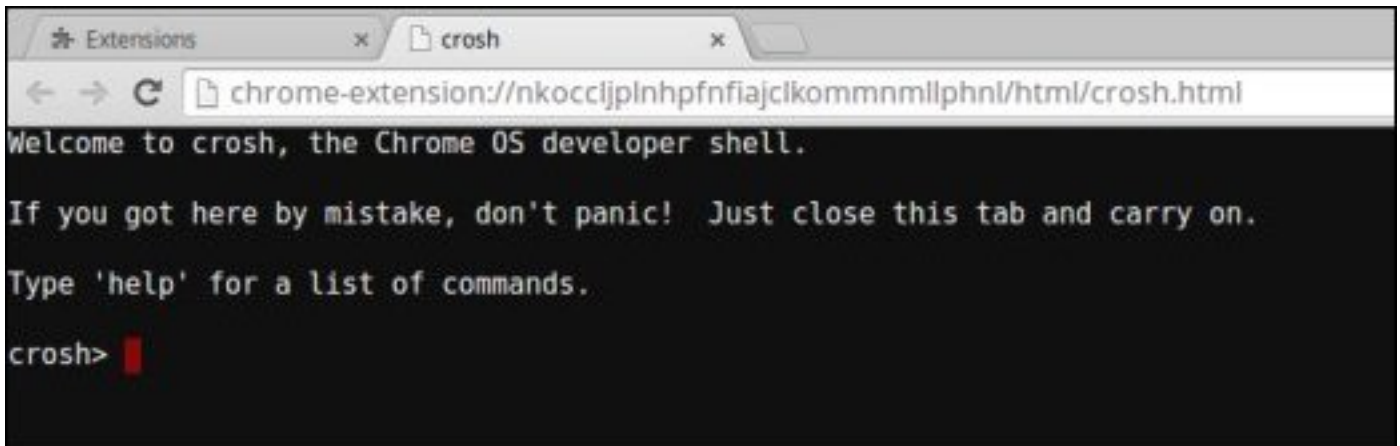
```
crosh> memory test
7302455E95F2459CA2A02371F510DE6C
memtester version 4.2.2 (64-bit)
Copyright (C) 2010 Charles Cazabon.
Licensed under the GNU General Public License version 2 (only).

pagesize is 4096
pagesizemask is 0xfffffffff000
want 2816MB (2952790016 bytes)
got 2816MB (2952790016 bytes), trying mlock ...locked.
Loop 1/1:
Stuck Address      : testing 0FAILURE: possible bad address line at offset 0xd9b8008
Skipping to next test...
```

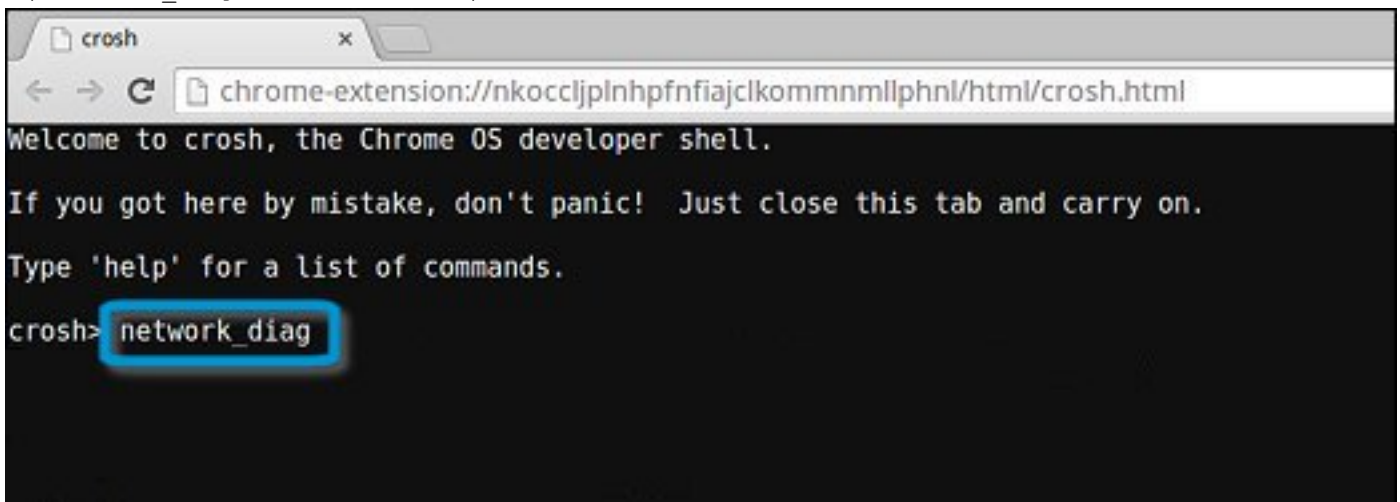
Checking network status

If you are having trouble connecting to the Internet, use the steps in one or more of the following sections to test the network adapter: Follow the instruction to gather the information about the network and diagnose the network errors.

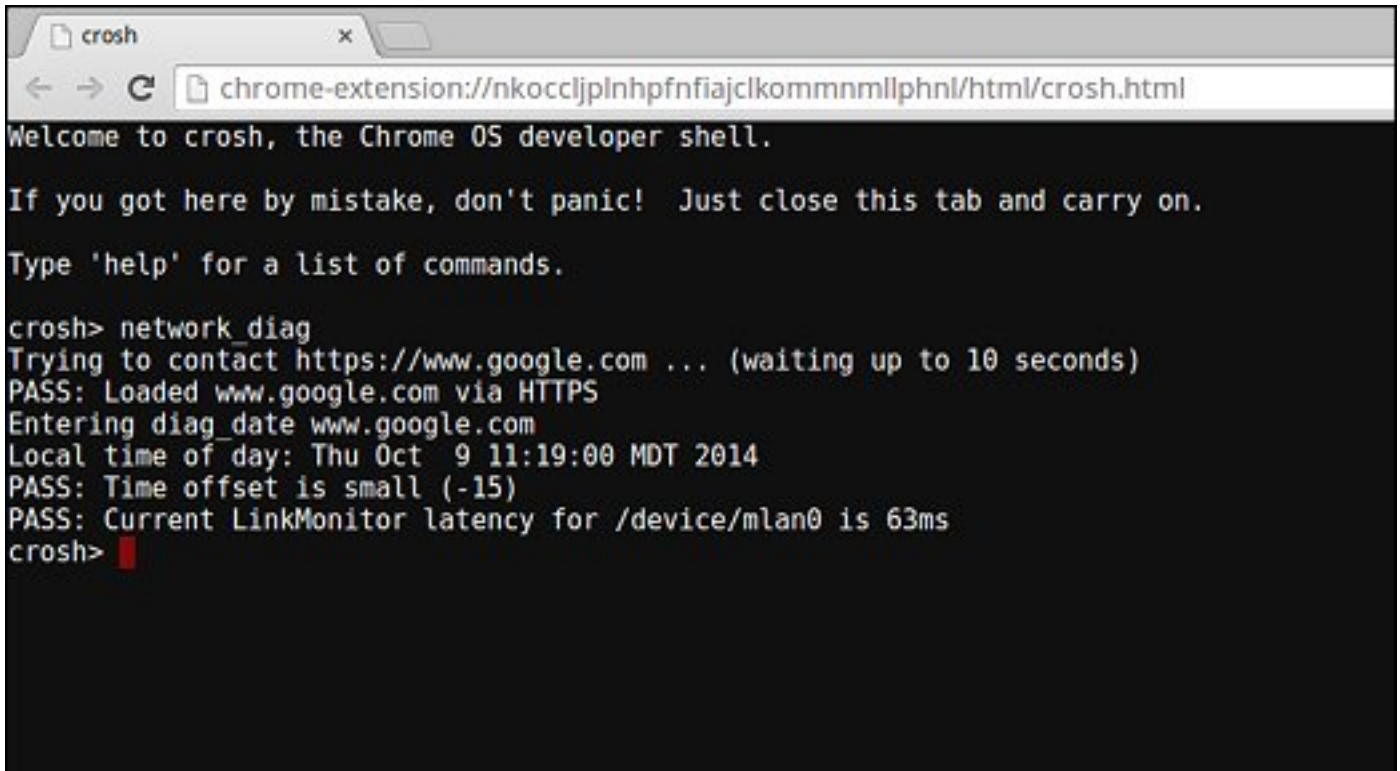
1. Turn on and sign in to Chromebook.
2. Open the Chrome browser.
3. Press CTRL + ALT + T to open CROSH.



4. Type `network_diag` into CROSH, and then press **Enter**.



5. Wait while CROSH performs a set of network diagnostic tests. A diagnostic screen displays the results of the network adapter health test.



The screenshot shows a web browser window with a single tab titled 'crosh'. The address bar displays the URL 'chrome-extension://nkoccljplnhpfnfiajclkommmmlphnl/html/crosh.html'. The main content area has a black background with white text. It starts with a welcome message: 'Welcome to crosh, the Chrome OS developer shell.' followed by instructions: 'If you got here by mistake, don't panic! Just close this tab and carry on.' and 'Type 'help' for a list of commands.' Below this, the command 'crosh> network_diag' has been entered. The output shows the system attempting to contact 'https://www.google.com ... (waiting up to 10 seconds)', successfully loading the page via HTTPS, entering the date 'Thu Oct 9 11:19:00 MDT 2014', and reporting a 'Current LinkMonitor latency for /device/mlan0 is 63ms'. The prompt 'crosh>' is visible at the bottom.

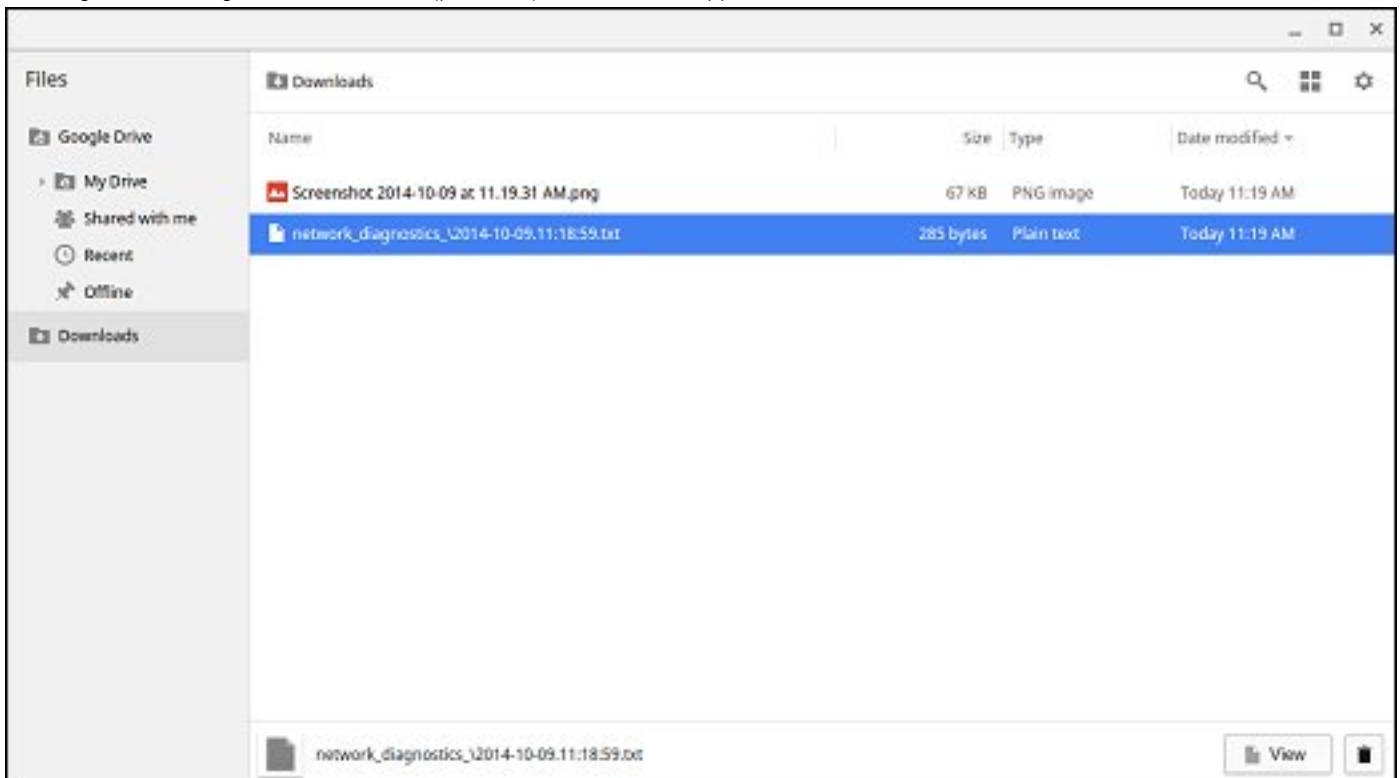
```
Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

crosh> network_diag
Trying to contact https://www.google.com ... (waiting up to 10 seconds)
PASS: Loaded www.google.com via HTTPS
Entering diag_date www.google.com
Local time of day: Thu Oct 9 11:19:00 MDT 2014
PASS: Time offset is small (-15)
PASS: Current LinkMonitor latency for /device/mlan0 is 63ms
crosh>
```

6. The diagnostic test log is saved as a .txt (plain text) file in the Files app.



7. If the diagnostic test returns a failure message, make sure the Wi-Fi adapter is enabled and connect to a network.

```
Enter diag ping 192.168.1.254
connect: Network is unreachable
Press Enter to continue ping OK
FAIL: We can reach the nameservers but were not able to resolve hostnames
FAIL: You may be behind a captive portal or there may be a DNS
FAIL: configuration problem
Entering get device list
```

Reset Chromebook

This page contains all information about resetting Dell Latitude 7410 Chromebook Enterprise.

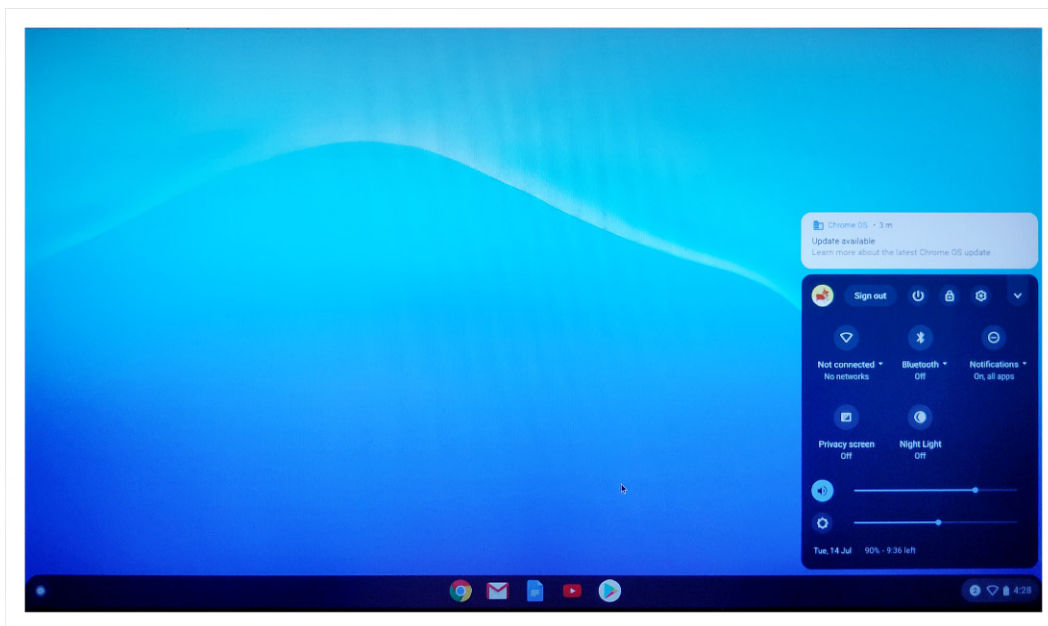
All local user data stored on the Chromebook can be cleared by resetting it to its original factory state (also known as Powerwash).

This step might be helpful if you want to reset owner permissions or if you are experiencing issues with your user profile.

- NOTE:** All data stored on your Chromebook such as downloaded files, photos, owner permissions, and saved networks, will be deleted for all accounts when performing a factory reset. After clearing this data, you will be guided through the initial setup again. Resetting your device will not affect your accounts themselves, or any data synced to these accounts.
- NOTE:** Do not follow the instructions below if you're using a managed Chrome device, as you will not be able to re-enroll your device after powerwashing it.

Follow these steps to reset your Chromebook to its original factory state:

1. Click the status area in the lower-right corner, where your account picture appears.



2. Click **Settings** icon represented by the gear symbol.
3. Click **Show advanced settings** to expand the menu.
4. Click the **Powerwash** button.
5. Click **Restart** when prompted.

You can also reset your Chromebook from the sign-in screen by holding down the keys **Ctrl+Alt+Shift+R** and clicking **Restart**. (If you are signed in to your Chromebook, sign out first before you press on **Ctrl+Alt+Shift+R**, then click **Restart**. Once the Chromebook is restarted, click **Reset**.)

After you restart the Chromebook, you should now see the setup screen. Follow the instructions on the screen to set up your Chromebook again. Make sure you sign in with your primary Google Account, because this account is set as the owner account.

Recovery Chromebook

This page contains information about recovering Dell Latitude 7410 Chrombook Enterprise.

Recovering the Chromebook

Install a new version of the Chrome operating system on your Chromebook by going through the recovery process. You may want to go through this process if you are having problems updating your Chromebook or if it stops working.

NOTE: All account information and data stored on your Chromebook, such as photos, downloaded files, and saved networks, will be deleted. Owner privileges for your primary account will also be reset. However, the actual Google Accounts and any data synced to these accounts are not affected by the recovery process. After the recovery process is complete, you will be guided through the initial setup again.

Prerequisites:

Before starting this process, you need the following:

- A Chrome device, Windows, Mac, or the Linux computer with administrative rights.
- A 4 GB or larger USB flash drive or SD card that you do not mind clearing.

Step 1- Check for the Chrome OS is missing or damaged message

If you see this message, you can first try to perform a hard reset on your Chromebook by pressing Refresh + Power. If you still see this message after performing a hard reset, please proceed to Step 2.

If you see the **Chrome OS verification is turned off** message, refer to **Chrome OS verification is turned off** section below.

Step 2- Create the recovery USB flash drive or SD card

Insert a USB flash drive or SD card into your computer and follow the instructions below

Table 16. USB flash drive or SD card

Operating System	Instructions
Chrome Device Instructions	Create a recovery flash drive by using the Image Burner. The tool may not be available in all languages. 1. Type <code>chrome://imageburner</code> into the omnibox (browser's address bar) . 2. Run the tool and follow the instructions that appear on your screen. NOTE: When recovering your Chromebook, make sure to create the recovery flash drive on the same model.
Windows Instructions	1. Click this link to download the Recovery Tool. If you are a network administrator for your school, business, or organization, click this link to download the Recovery Tool: 2. 3. 2. Run the tool and follow the instructions that appear on your screen. 3. After you recover your Chromebook, you must format your USB flash drive or SD card using the Recovery Tool. If you do not format your USB flash drive or SD card, you will not be able to use all the storage space on your external device. Additionally, your USB flash drive or SD card may not be recognizable by Windows.
Mac Instructions	Create a recovery flash drive by using the Recovery Tool. The tool may not be available in all languages. 1. Click this link to download the Recovery Tool. 2. Run the tool and follow the instructions that appear on your screen.

Table 16. USB flash drive or SD card (continued)

Operating System	Instructions
	After the process is complete, you might see an alert saying your USB drive or SD card is unreadable. If this fails, try removing and reinserting your USB drive or SD card. Your USB drive or SD card should now be ready to use for recovery.
Linux Instructions	Create a recovery flash drive by using the Recovery Tool. The tool may not be available in all languages. 1. Click this link to download the Recovery Tool. 2. Modify the script permissions to allow execution with the following command: <code>\$ & sudo chmod 755 linux_recovery.sh</code> 3. Run the script with root privileges with the following command: <code>\$ sudo bash linux_recovery.sh</code> 4. Follow the prompts from the tool to complete building the operating system image.

Reinstall the Chrome Operating System

1. Start your Chromebook.
2. When the **Chrome OS is missing or damaged** screen appears, insert the USB flash drive or SD card you created into the USB port or SD card slot on your Chrome device
3. Wait for the Chromebook to boot up from the flash drive
4. Follow the instructions that appear on the screen.
5. On successful installation of the Chrome operating system, you will be prompted to remove the USB flash drive or SD card.
6. Remove the USB flash drive or SD card when prompted, and your Chromebook will automatically restart.

You should now be able to start your Chromebook as normal. Because the data stored on your Chromebook has been cleared, you will need to go through the initial setup again. Make sure you sign in with your primary Google Account, because this account will be set as the owner account.

Chrome OS verification is turned off Message

By default, Chromebooks are set to the normal user mode. If you've set the user mode to developer mode instead, you'll see a screen with the message "Chrome OS verification is turned off" when you start up. Use the developer mode if you want to test your own version of the Chrome operating system.

Press **Ctrl+D** to enter developer mode. If you press the space bar instead, you'll see a screen asking to recover your device.

Troubleshooting Tips

Table 17. Troubleshooting tips

Question	Solution
I am unable to recover my Chromebook	To help ensure that you are running the latest version of Chrome OS once you recover your Chromebook, we recommend creating the recovery media with the latest version of Chrome OS and avoid using recovery media that may contain an older version of the operating system.
An error message An unexpected error has occurred.	Try the following steps: 1. Confirm that you successfully completed all instructions exactly as specified in Step 2: Create the recovery USB flash drive or SD card above. 2. Try using a different USB stick or SD card. 3. If the problem persists, contact Google Chrome support team.
An error message You are using an out-of-date Chrome OS recovery image.	You should download an up-to date recovery image. Simply follow all the instructions exactly as specified in Step 2 above.

Table 17. Troubleshooting tips (continued)

Question	Solution
You successfully recovered your Chromebook but now you can not use your USB or SD card with Windows	After you have completed recovery, you need to format your USB or SD card using the recovery tool.
You successfully recovered your Chromebook but now Windows does not recognize the whole size of the USB or SD card used for recover.	After you have completed recovery, you need to format your USB or SD card using the recovery tool.

Getting help

Topics:

- [Contacting Dell](#)

Contacting Dell

Prerequisites

 **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.