

Chromebook 11 3189

Disassembly and Reassembly Guide - For use by Dell
Certified Technicians only



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.

Chapter 1: Working on your computer.....	5
Safety instructions.....	5
Storing Chromebooks for long term - best practices.....	5
Before working inside your computer.....	6
After working inside your computer.....	6
Chapter 2: Removing and installing components.....	8
Recommended tools.....	8
microSD card.....	8
Removing microSD card.....	8
Installing microSD card.....	8
Base cover.....	9
Removing base cover.....	9
Installing base cover.....	10
Battery.....	10
Lithium-ion battery precautions.....	10
Removing battery.....	11
Installing battery.....	11
Keyboard.....	12
Removing keyboard.....	12
Installing keyboard.....	14
Power switch board.....	15
Removing power switch board.....	15
Installing power switch board.....	16
Audio board.....	16
Removing audio board.....	16
Installing audio board.....	17
Power connector port.....	17
Removing power connector port.....	17
Installing power connector port.....	18
Speaker.....	19
Removing speaker.....	19
Installing speakers.....	20
Display assembly.....	20
Removing display assembly.....	20
Installing display assembly.....	23
Display back cover.....	24
Removing display back cover.....	24
Installing display back cover.....	25
System board.....	25
Removing system board.....	25
Installing system board.....	28
Palm rest.....	29
Replacing palm rest.....	29

Chapter 3: Product specification.....	31
Chapter 4: Software.....	33
Operating system.....	33
Chrome OS.....	33
Verified Boot.....	34
Disk Partition Map.....	35
Developer and Recovery mode.....	36
Coreboot and U-boot Custom Firmware.....	36
Chrome vs Chromium OS.....	36
View system information.....	37
Dell activity light.....	39
Overview.....	39
Raise your Hand/Answer Question/Discussion buttons.....	40
MultiColor Poll	40
Chapter 5: Technology and components.....	42
Keyboard.....	42
Keyboard keys function.....	42
Touchpad.....	44
Integrated microphone.....	45
Key features.....	45
Typical applications.....	45
Bluetooth.....	45
Chapter 6: Diagnostic and troubleshooting.....	47
Basic troubleshooting.....	47
Power issues.....	47
CROSH.....	51
CROSH commands.....	52
Chrome commands.....	54
Commonly used CROSH command.....	59
Check battery charging status.....	59
Reset Chromebook.....	66
Recovery Chromebook.....	69
Recovering the Chromebook.....	69
Chapter 7: Contacting Dell.....	72

Working on your computer


Topics:


- [Safety instructions](#)
- [Storing Chromebooks for long term - best practices](#)
- [Before working inside your computer](#)
- [After working inside your computer](#)


Safety instructions

Use the following safety guidelines to protect your computer from potential damage and to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:


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


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

 **NOTE:** Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance

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

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



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

 **CAUTION:** When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

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

Storing Chromebooks for long term - best practices

Prior to long term (Summer) storage:

1. Update to the latest version of the Chrome OS and charge your Chromebooks so that the battery is at least 80% full.
 - a. This ensures that even when the battery discharges while unplugged over the summer, it will not fully run out of power.
2. Connect the device to a charger and then turn it on.
3. Hold Refresh  and Power  keys at the same time.
4. While holding these keys, remove the power cable from the device and then release the keys. The device should shut down and remain off.

5. Attempt to power the unit on, by pressing the power button. If the unit does not power on, you have completed the steps and can safely store the system. If the unit powers on, you should repeat steps 2 to 4.

Upon redeploying:

1. Connect the Chromebooks to a charger and a power source, which will get them out of the battery disconnect state. Power up your device.
2. Connect your Chromebooks to WiFi and update them to the latest Chrome OS release.
 - a. This can take time, as multiple Chrome OS versions may have been released since the last time the device was updated.


Before working inside your computer

Steps

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


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

4. Disconnect all network cables from the computer.
5. Disconnect your computer and all attached devices from their electrical outlets.
6. Close the display and turn the computer upside-down on a flat work surface.

 **NOTE:** To avoid damaging the system board, you must remove the main battery before you service the computer.

7. Remove the base cover.
8. Remove the main battery.
9. Turn the computer top-side up.
10. Open the display.
11. Press and hold the power button for few seconds, to ground the system board.

 **CAUTION:** To guard against electrical shock, always unplug your computer from the electrical outlet before opening the display.


 **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.

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

After working inside your computer

About this task

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

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

Steps

1. Replace the battery.
2. Replace the base cover.
3. Connect any external devices, such as a port replicator or media base, and replace any cards, such as an ExpressCard.
4. Connect any telephone or network cables to your computer.

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

5. Connect your computer and all attached devices to their electrical outlets.
6. Turn on your computer.

Removing and installing components

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

Topics:

- [Recommended tools](#)
- [microSD card](#)
- [Base cover](#)
- [Battery](#)
- [Keyboard](#)
- [Power switch board](#)
- [Audio board](#)
- [Power connector port](#)
- [Speaker](#)
- [Display assembly](#)
- [Display back cover](#)
- [System board](#)
- [Palm rest](#)

Recommended tools

The procedures in this document require the following tools:

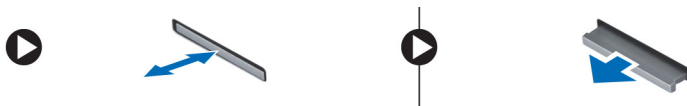
- Phillips #0 screwdriver
- Phillips #1 screwdriver
- Plastic scribe

microSD card

Removing microSD card

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Press in on the microSD card to release it from the computer.



3. Remove the microSD card from the computer.

Installing microSD card

Steps

1. Slide the SD card into its slot until it clicks into place.
2. Install the [microSD card](#).
3. Follow the procedure in [After working inside your computer](#).

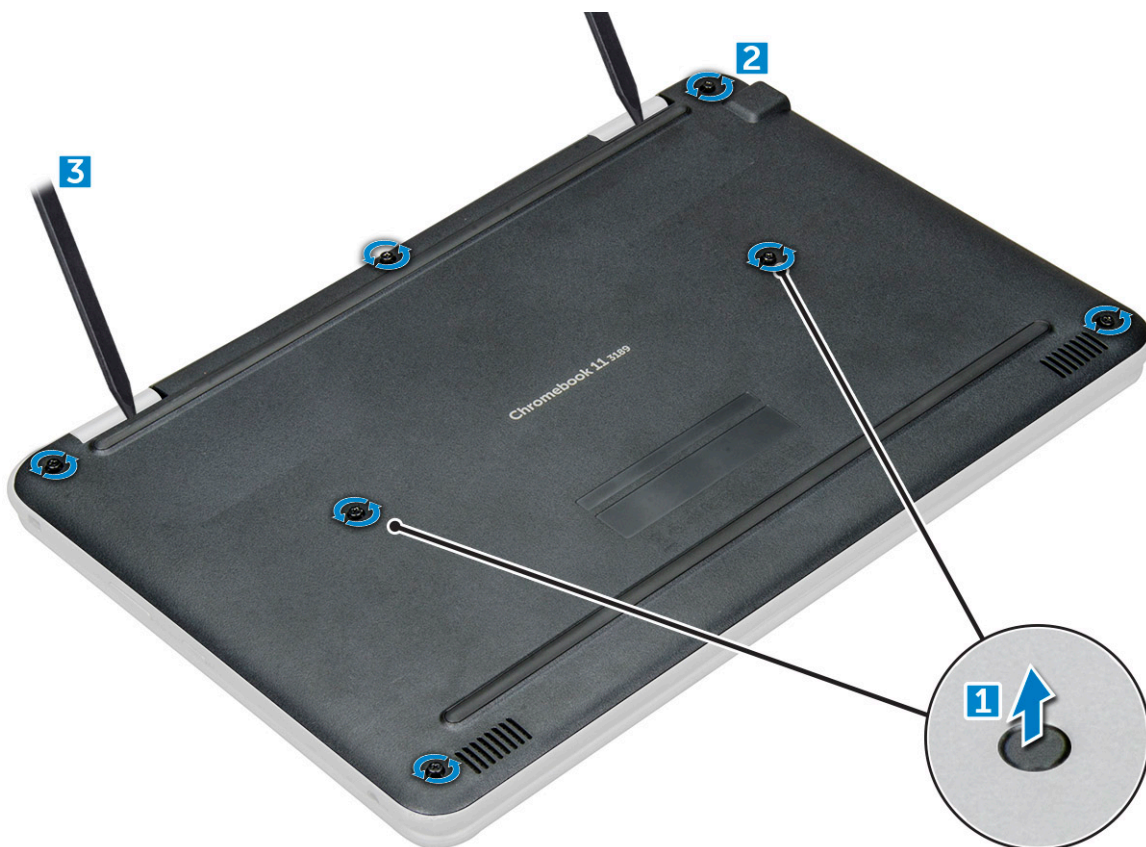
Base cover

Removing base cover

Steps

1. Follow the procedure in [Before working inside your computer.](#)
2. Remove the [microSD card.](#)
3. To remove the base cover:
 - a. Remove the mylar cap [1].

NOTE: The screw cover on the base cover is made up of a mylar sticker. To remove this screw, use a regular philips driver and puncture the mylar cover. Once the mylar caps are removed it cannot be replaced, and the screws will be exposed from that point forward.
 - b. Loosen the M2.5x7 captive screws that secure the base cover to the computer [2] .



- c. Pry the base cover from the edge.

NOTE: You may need a 3c plastic scribe to pry the base cover from the edge.
4. Lift the base cover away from the computer.



Installing base cover

Steps

1. Toe in the base cover front edge into the system.
2. Press the edges of the cover until it clicks into place.
3. Replace the M2.5x7 screws to secure the base cover to the computer.
4. Install the [microSD card](#)
5. Follow the procedure in [After working inside your computer](#).

Battery

Lithium-ion battery precautions

⚠ CAUTION:

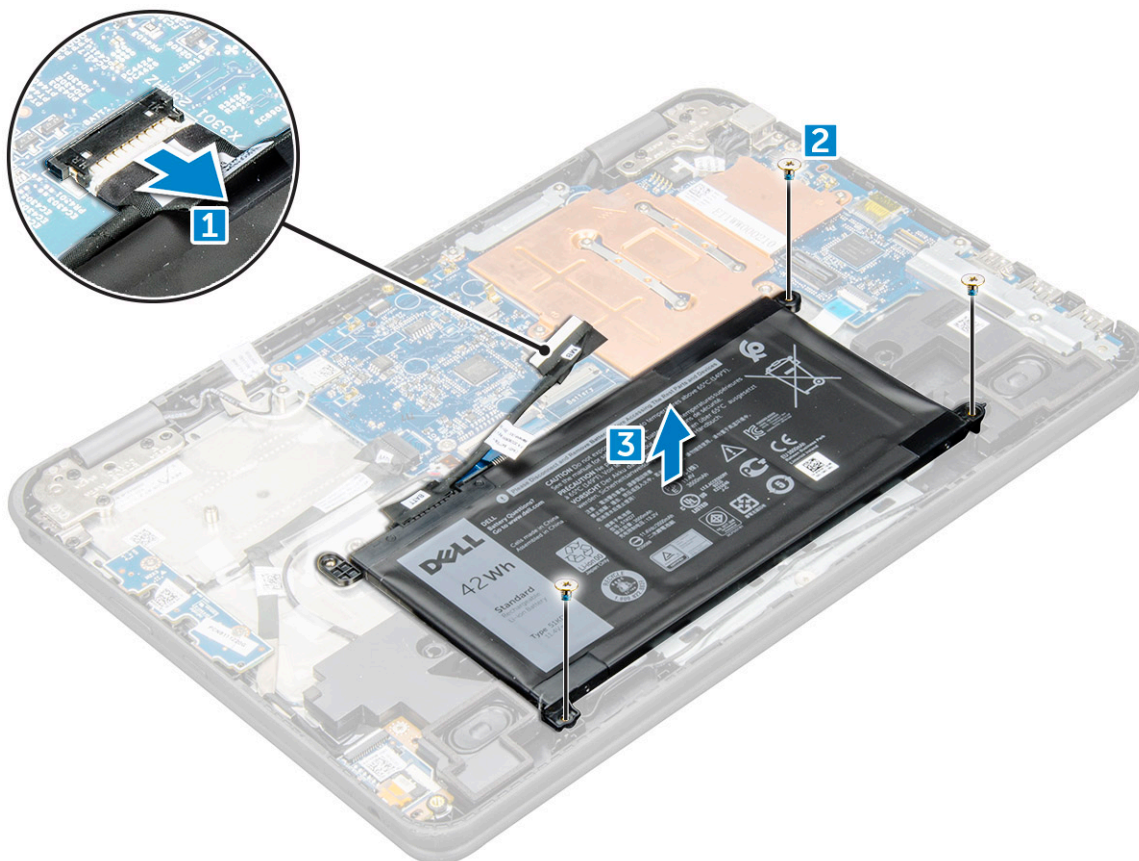
- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery as much as possible before removing it from the system. This can be done by disconnecting the AC adapter from the system to allow the battery to drain.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any kind to pry on or against the battery.
- 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 a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a Lithium-ion battery can be dangerous. In such an instance, contact for assistance and further instructions.
- 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.

Removing battery

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
3. To remove the battery:
 - a. Disconnect the battery cable from the connector on the system board [1].
 - b. Remove the M2.0x3.0 screws that secure the battery to the computer [2].
 - c. Lift the battery away from the computer [3].



Installing battery

Steps

1. Insert the battery into the slot on the computer.
2. Connect the battery cable to the connector on the battery.
3. Replace the M2.0x3.0 screws to secure the battery to the computer.

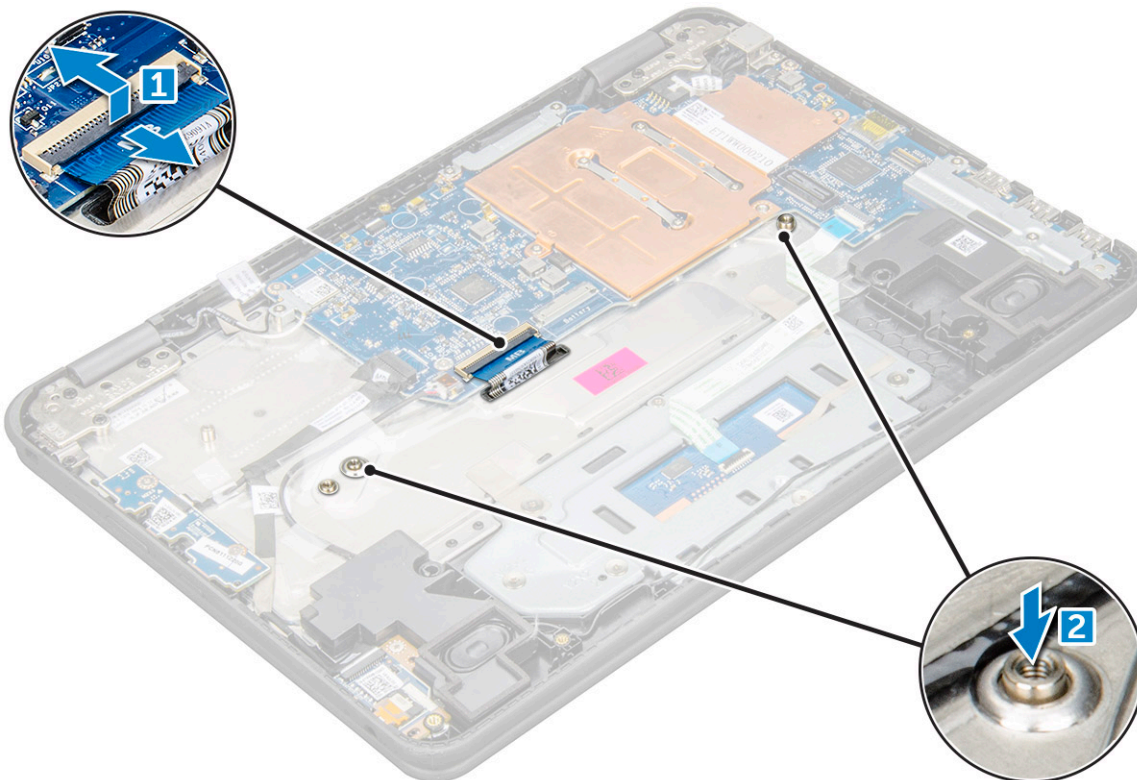
4. Install the:
 - a. [base cover](#)
 - b. [microSD card](#)
5. Follow the procedure in [After working inside your computer](#).

Keyboard

Removing keyboard

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
3. To remove keyboard:
 - a. Disconnect the keyboard cable from the system board [1].
 - b. Use the plastic scribe to the release the keyboard [2].



NOTE: The two release holes for the keyboard are indicated by the "KB" labeling.

4. Slide the keyboard outwards, away from the computer.



i NOTE: Carefully pull the keyboard connector through the gap in the palm rest.

5. Lift the keyboard away from the computer.



Installing keyboard

Steps

1. Align the keyboard trim with the tabs on the computer, and press it until it clicks into place.



2. Connect the keyboard cable on the system board.
3. Install the:

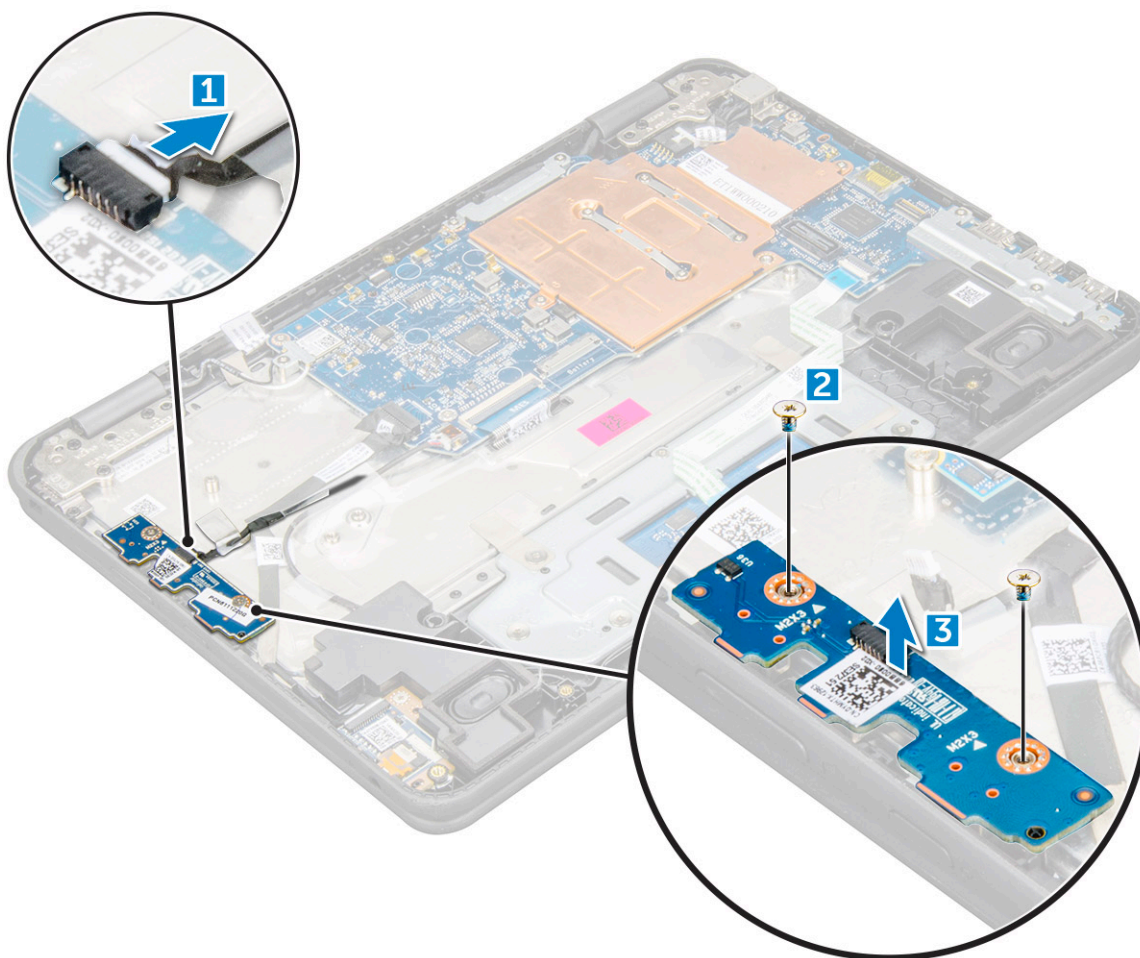
- a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
4. Follow the procedure in [After working inside your computer](#).

Power switch board

Removing power switch board

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
3. To remove the power switch:
 - a. Disconnect the power switch cable from the power switch board [1].
 - b. Remove the M.2.0x3.0 screws that secure the power switch board on the computer [2].
 - c. Lift the power switch board away from the computer [3].



Installing power switch board

Steps

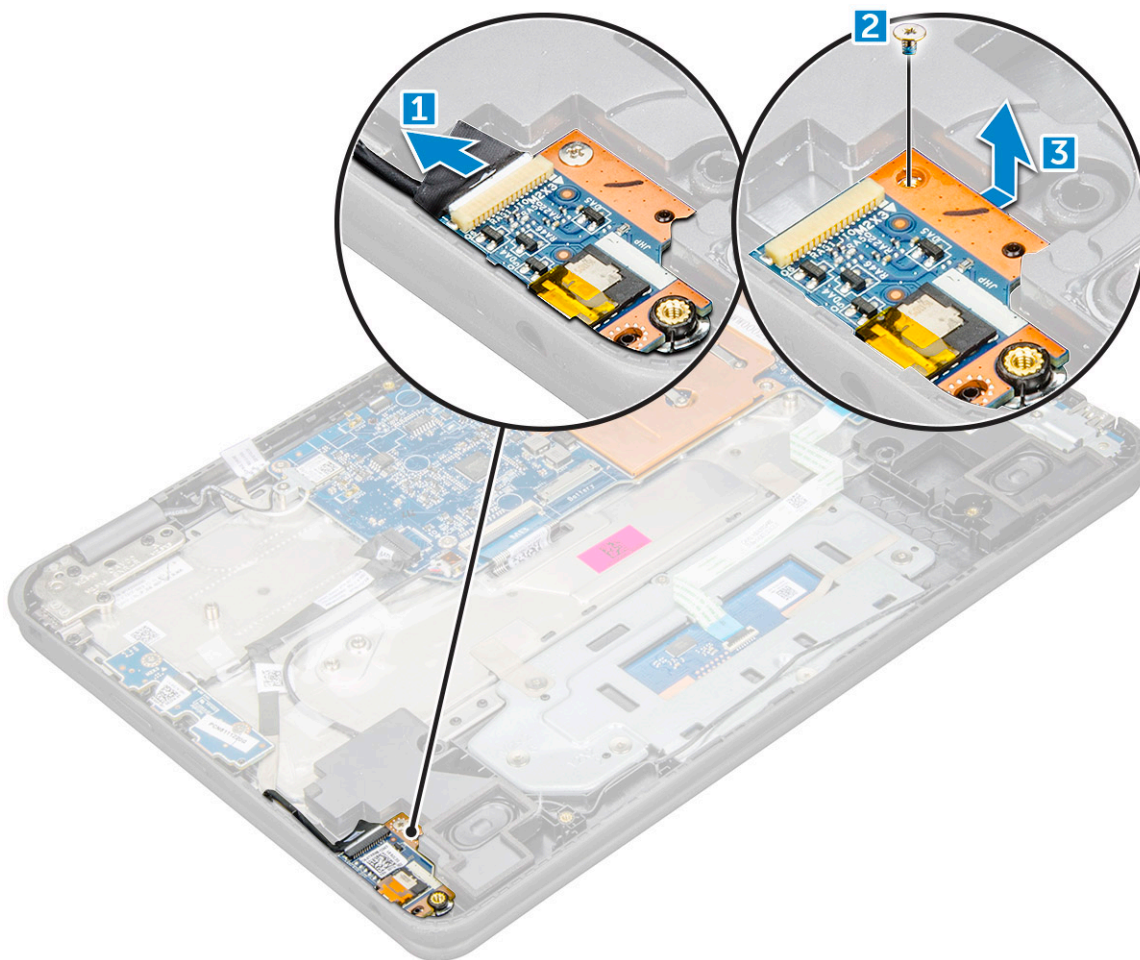
1. Align the screw hole on the power switch board into the slot on the computer.
2. Replace the M2.0x3.0 screws that secure the power switch board to the computer.
3. Connect the power switch cable to the connector on the power switch board.
4. Install the:
 - a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
5. Follow the procedure in [After working inside your computer](#).

Audio board

Removing audio board

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
3. To remove the audio board:
 - a. Disconnect the audio cable from the connector on the audio board [1].
 - b. Remove the M.2.0x3.0 screw that secures the audio board on the computer [2].
 - c. Lift the audio board away from the computer [3].



Installing audio board

Steps

1. Insert the audio board into the slot on the computer.
2. Replace the M2.0x3.0 screw that secure the audio board to the computer.
3. Connect the audio cable to the connector on the audio board.
4. Install the:
 - a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
5. Follow the procedure in [After working inside your computer](#).

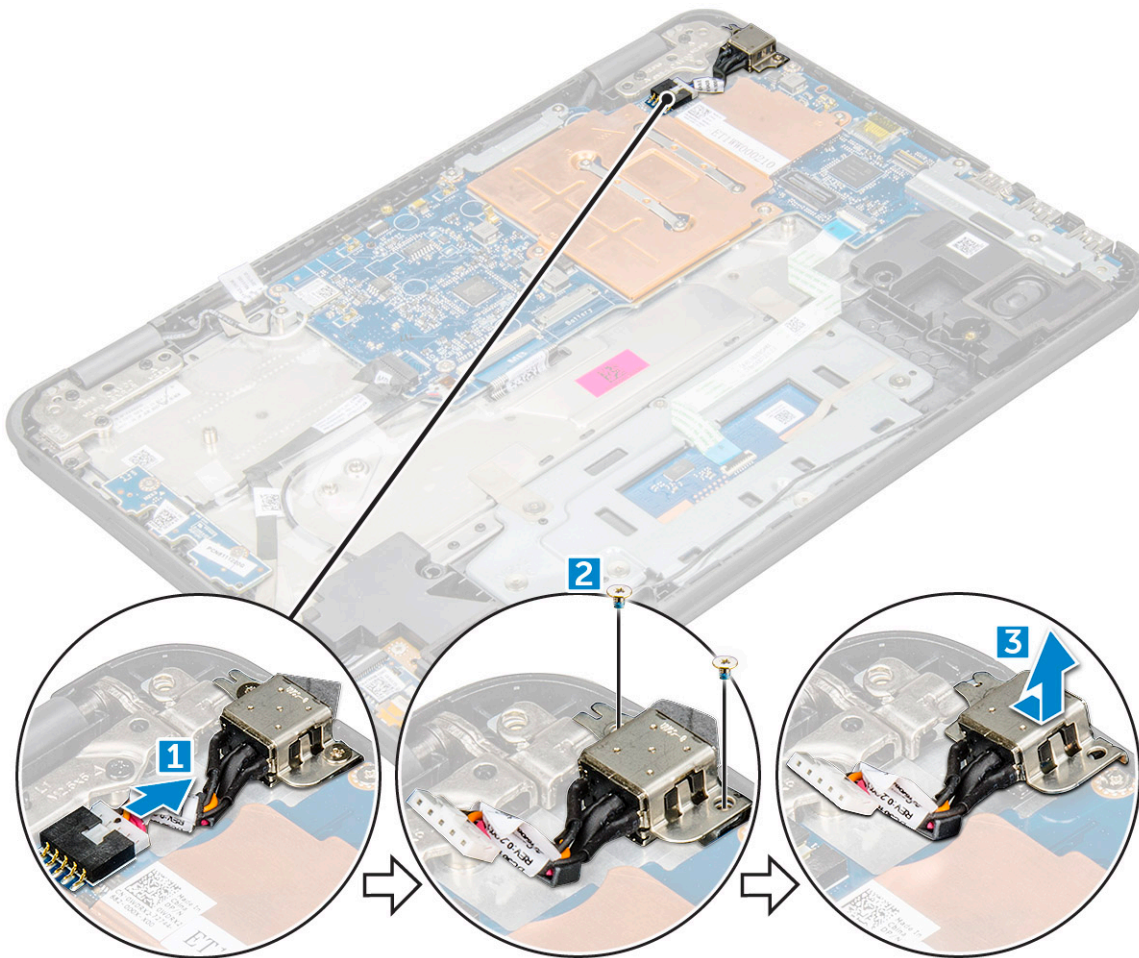
Power connector port

Removing power connector port

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)

- c. [battery](#)
- 3. To remove the power connector port:
 - a. Disconnect the power connector cable from the connector on the system board [1].
 - b. Remove the M.2.0x3.0 screws that secure the power connector port on the computer [2].
 - c. Slide and lift the power connector port away from the computer [3].



Installing power connector port

Steps

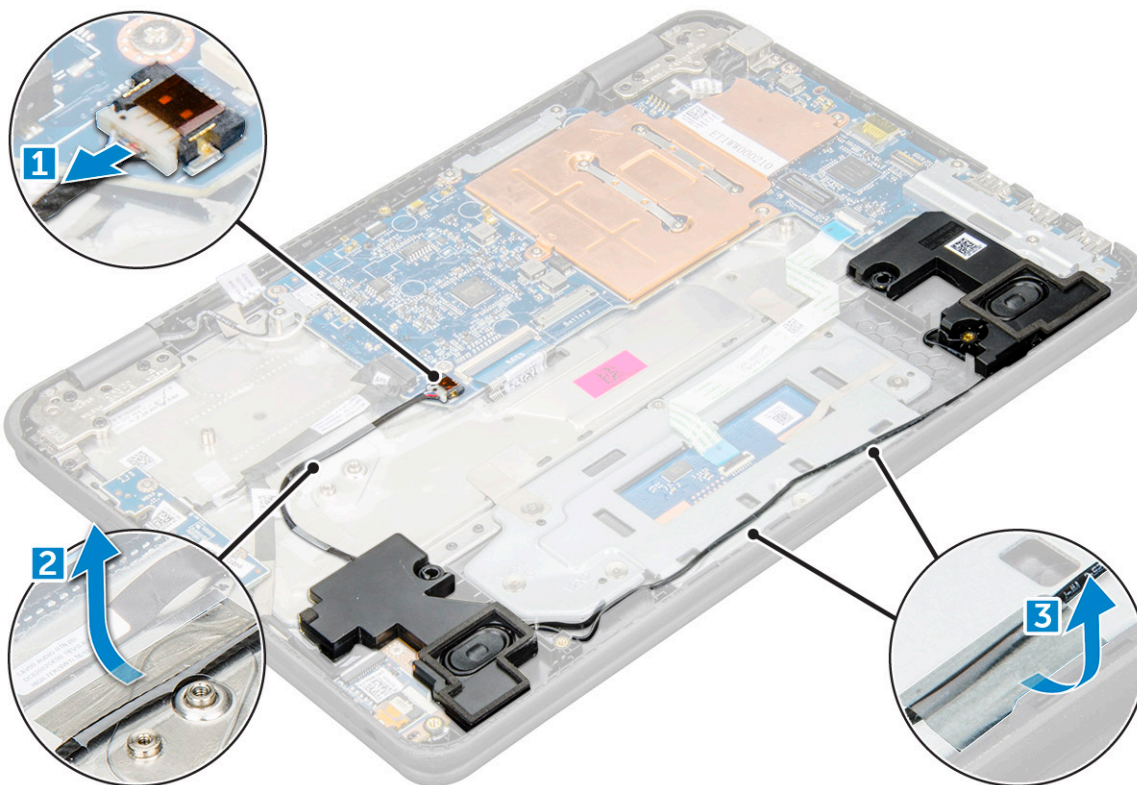
1. Insert the power connector port into the slot on the computer.
2. Replace the M2.0x3.0 screw that secures the power connector port to the computer.
3. Connect the power connector cable to the connector on the system board.
4. Install the:
 - a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
5. Follow the procedure in [After working inside your computer](#).

Speaker

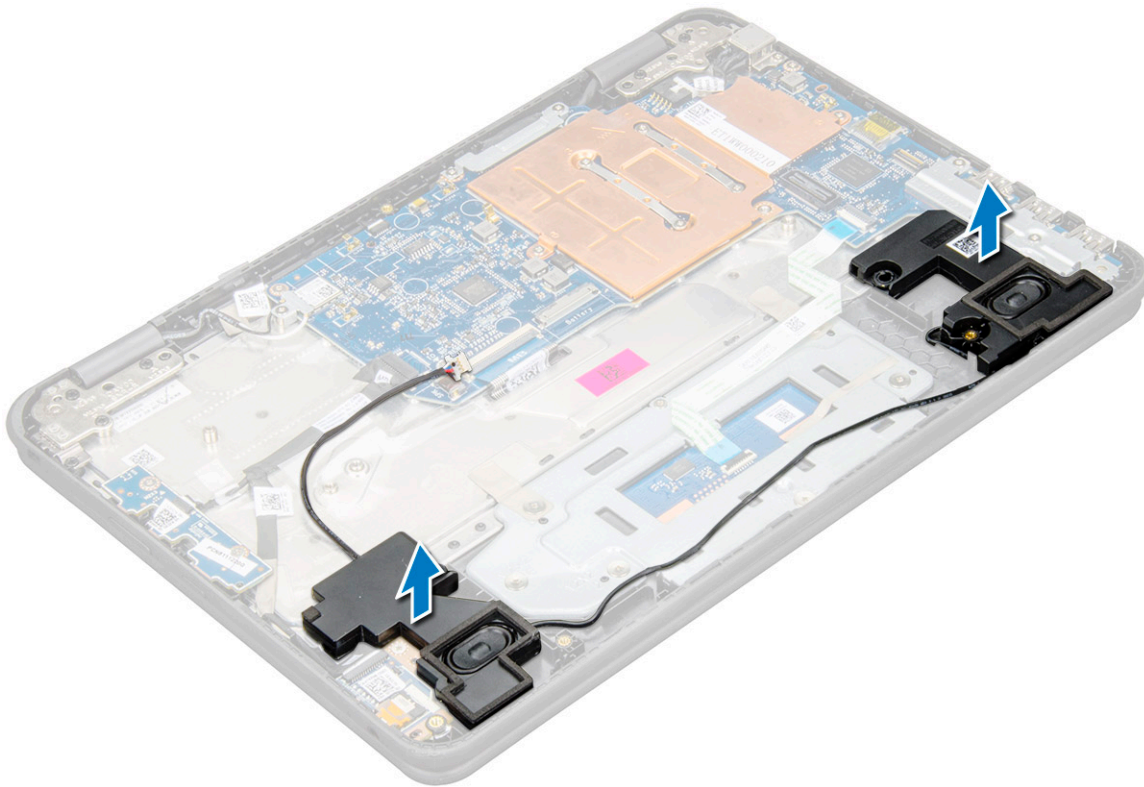
Removing speaker

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
3. To remove the speaker:
 - a. Disconnect the speaker cable from the connector on the system board [1].
 - b. Remove the adhesive tape that secures the speaker cable on the computer .
 - c. Unroute the speaker cable from the routing channel [3].



4. Remove the speaker from the computer.



Installing speakers

Steps

1. Place the speakers into the slots on the computer.
2. Route the speaker cable through the retention clips through routing channel.
3. Affix the adhesive tape to secure the speaker cable on the computer.
4. Connect the speaker cable to the connector on the system board.
5. Install the:
 - a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
6. Follow the procedure in [After working inside your computer](#).

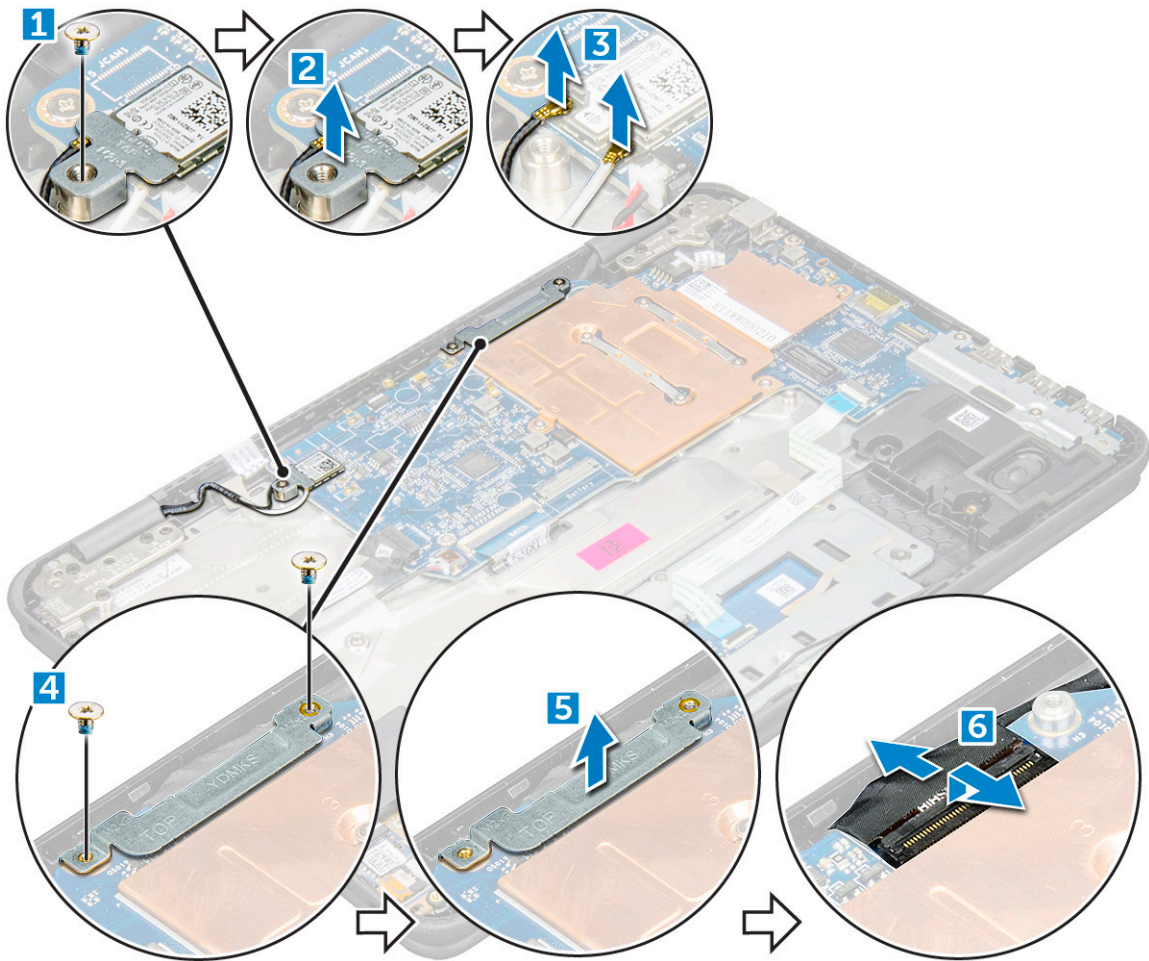
Display assembly

Removing display assembly

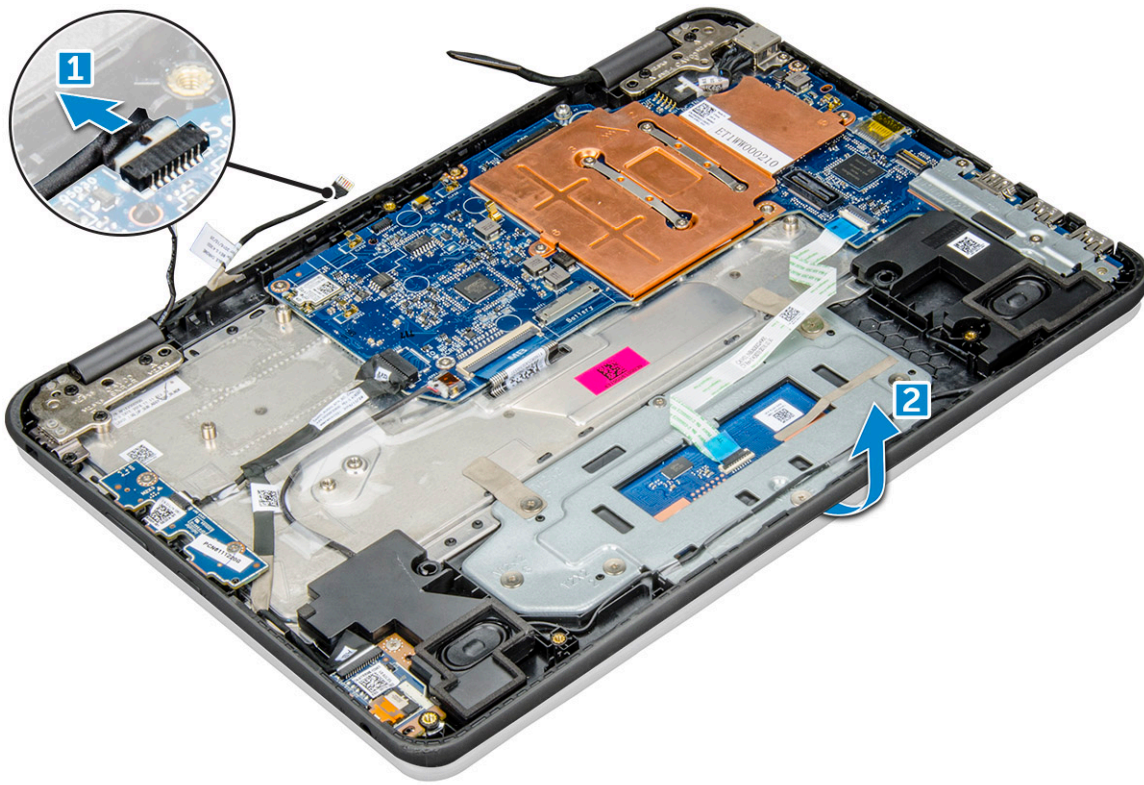
Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
3. To remove cables:
 - a. Remove the screw M2.0x3.0 and lift the metal bracket that secures the WLAN card on the system board [1, 2]
 - b. Disconnect the WLAN cables [3].

- c. Remove the screws M2.0x.30 and lift the metal bracket that secures the display cable on the computer [4, 5]
- d. Lift the latch, and disconnect the cable [6]



- 4. Disconnect the sensor cable, and turn over the computer [1, 2]



5. To remove display assembly:
 - a. Remove the display hinge screws M2.0xM5.0 that secure the display assembly to the computer [1].
 - b. Lift the display assembly away from the computer [2].



Installing display assembly

Steps

1. Place the display assembly to align with the screw holders on the computer.
2. Replace the screws that secure the display hinges to the palm-rest assembly.
3. Flip over the computer and connect the sensor cable on the system board.
4. Connect the display cable to the connector on the system board.
5. Place the metal bracket over the (display cable) connector, and tighten the M2.0x3.0 screws to secure the display cable to the computer.
6. Connect the WLAN cables.
7. Place the metal bracket, and tighten the M2.0x3.0 screw to the WLAN cable on the system board.
8. Install the:
 - a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
9. Follow the procedure in [After working inside your computer](#).

Display back cover

Removing display back cover

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Using the plastic scribe pry the edges of the display back cover.



3. Remove the display back cover away from the computer.



Installing display back cover

Steps

1. Align the display back cover with the tabs on the computer, and press it until it clicks into place.
2. Follow the procedure in [After working inside your computer](#).

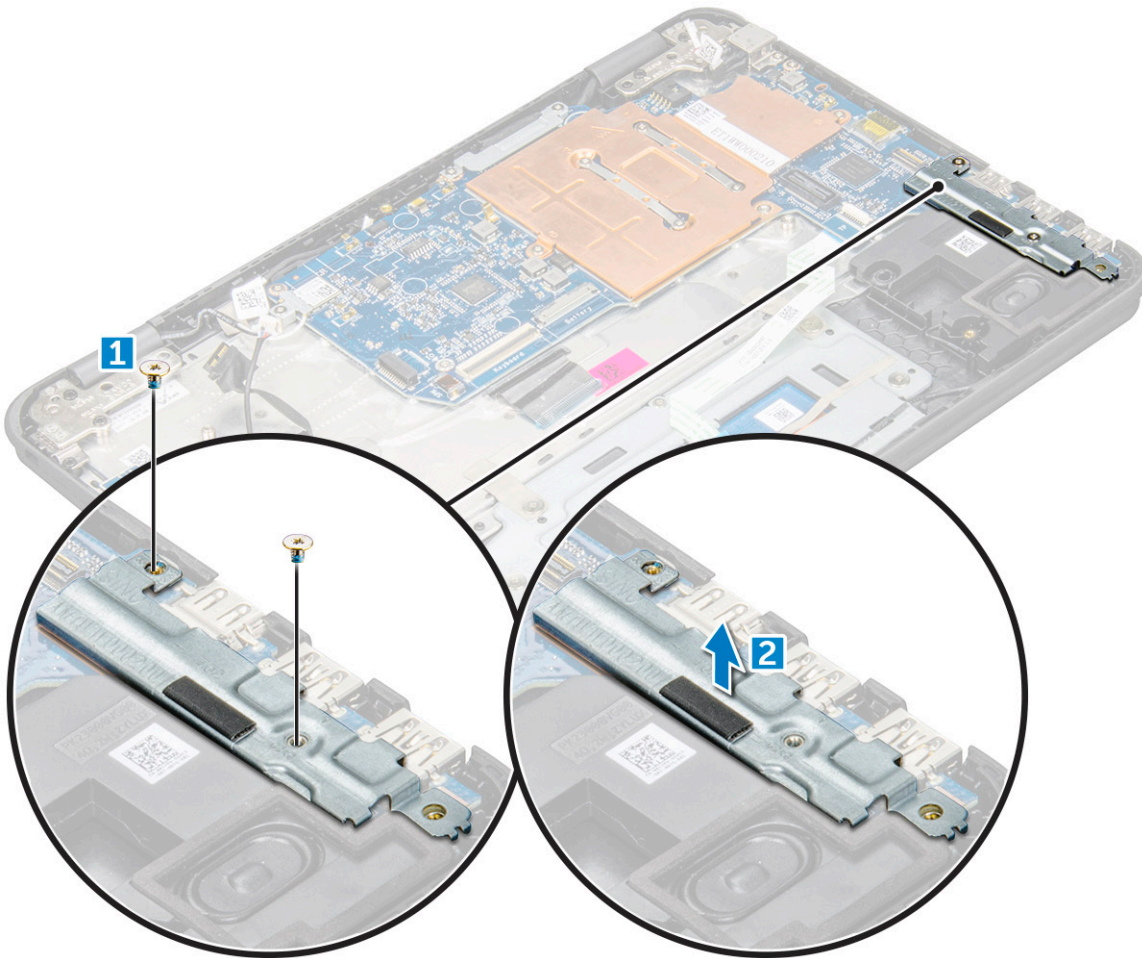
System board

Removing system board

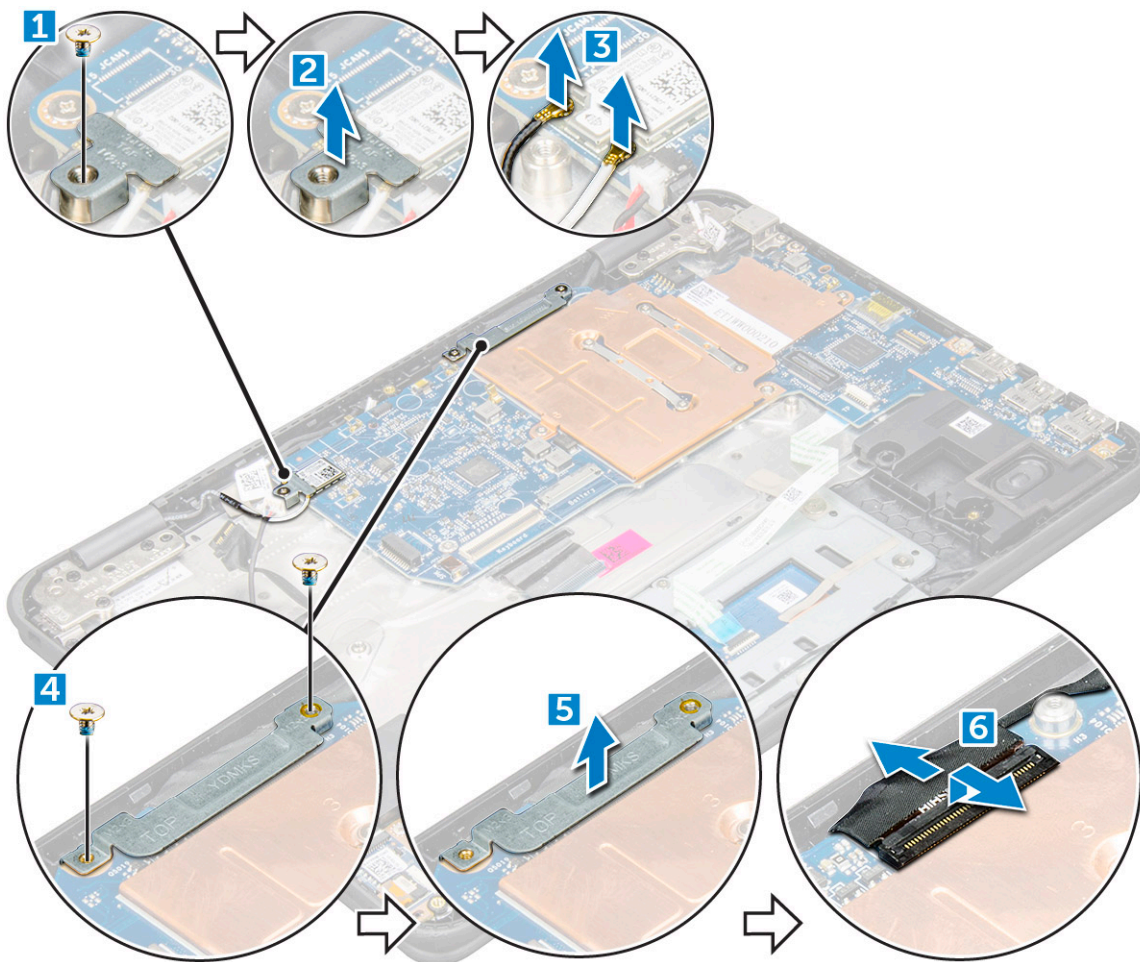
Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
3. Disconnect the following cables:
 - a. sensor cable [1]
 - b. power board and audio cable [2]
 - c. speaker cable [3]
 - d. keyboard cable [4]
 - e. touch pad cable [5]
 - f. power connector cable [6]
4. To remove metal bracket on the system board:

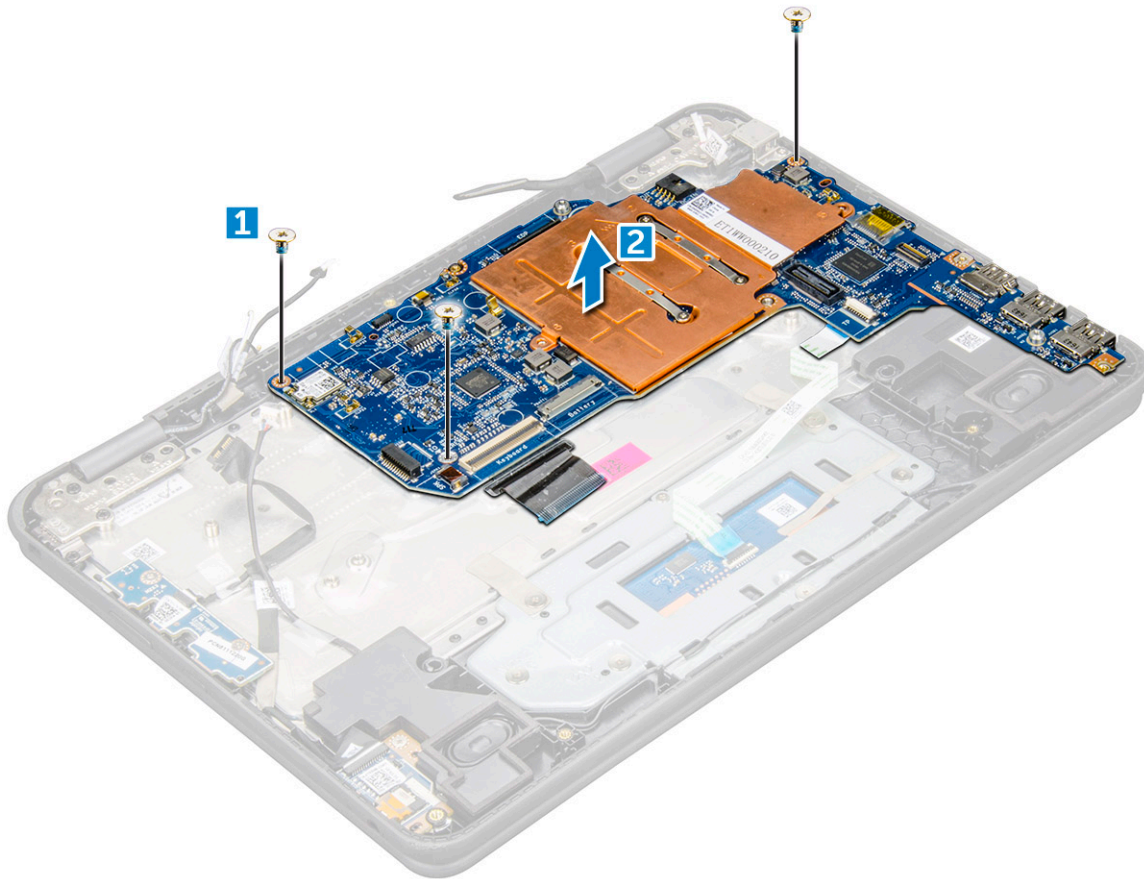
- a. Remove the screws on the metal bracket that secures the system board [1].
- b. Lift the metal bracket off the system board [2].



- 5. To remove the metal bracket (WLAN and display cable):
 - a. Remove the M2.0x3.0 screw and lift the metal bracket that secures the WLAN card on the system board [1, 2]
 - b. Disconnect the WLAN cables [3].
 - c. Remove the screws M2.0x3.0 and lift the metal bracket that secures the display cable on the computer [4, 5]
 - d. Lift the latch, and disconnect the cable [6]



6. To remove the system board:
- Remove the screws that secure the system board on the palm rest assembly [1].
 - Lift the system board off the palm- rest assembly [2].



Installing system board

Steps

1. Align the system board with the screw holders on the computer.
2. Tighten the M2.0x3.0 screws to secure the system board to the computer.
3. Connect the display cable to the connector.
4. Place the metal bracket over the connector and tighten the M2.0x3.0 screws to secure the display cable to the computer.
5. Connect the WLAN cables.
6. Place the metal bracket, and tighten the M2.0x3.0 screw to the WLAN cable on the system board.
7. Place the metal and tighten M2.0x3.0 screws to secure on the system board.
8. Connect the following cables:
 - a. power connector cable
 - b. touchpad cable
 - c. keyboard cable
 - d. speaker cable
 - e. power board and audio cable
 - f. sensor cable
9. Install the:
 - a. [battery](#)
 - b. [base cover](#)
 - c. [microSD card](#)
10. Follow the procedure in [After working inside your computer](#).

Palm rest

Replacing palm rest

Steps

1. Follow the procedure in [Before working inside your computer](#).
2. Remove the:
 - a. [microSD card](#)
 - b. [base cover](#)
 - c. [battery](#)
 - d. [keyboard](#)
 - e. [power switch board](#)
 - f. [audio](#)
 - g. [power connector](#)
 - h. [speaker](#)
 - i. [display assembly](#)
 - j. [system board](#)

i **NOTE:** Touchpad is not a standalone component and is assembled along with the palm rest.

i **NOTE:** The component you are left with is the palm rest.



3. Install the following components on the new palm rest:
 - a. [system board](#)
 - b. [display assembly](#)
 - c. [speaker](#)
 - d. [power connector](#)
 - e. [audio](#)
 - f. [power switch board](#)
 - g. [keyboard](#)

- h. [battery](#)
 - i. [base cover](#)
 - j. [microSD card](#)
4. Follow the procedure in [After working inside your computer](#).

Product specification

This section gives information about product specifications.

Table 1. Chrome 11 (3189) Product specification

Features	Chromebook 11 (3189)
Processor	<ul style="list-style-type: none"> Intel Celeron Processor N3060 (6 W, 2 M cache, up to 2.48 GHz) Intel Pentium N3710 (Quad Core, 1.6 GHz, 2 M cache, 6 W)
Operating System	Google Chrome OS
Chipset	Intel Braswell
Security	Browser based security with hardware TPM: Phishing and malware, SSL certificates, content settings Nobel Wedge Lock slot
Dimension	Front Height: 20.75 mm Back Height: 20.75 mm Width: 303.8 mm Depth: 207.9 mm
Weight	1462.10 g
Display	11.6 (1366 x 768) eDP 200 nits AntiGlare (With touch glass)
Graphics	Intel HD Graphics
Memory	<ul style="list-style-type: none"> LPDDR3 2 GB LPDDR3 4 GB
AC Adapter	65 W Dell E4 series AC adapter
Battery	3-cell lithium ion (42 Whr Rechargeable)
Audio Codec	MAXIM I2S based codec MAX98090
Integrated Microphone	Akustica AKU240 digital-output MEMS microphone
Primary Storage	16 GB Built In SanDisk eMMC storage
Connectivity	<ul style="list-style-type: none"> Intel Dual Band Wireless-AC 7265 802.11AC Bluetooth: 4.0
Multimedia	<ul style="list-style-type: none"> Stereo Speakers Webcam 720p
Ports and Slots	<ul style="list-style-type: none"> 2 x USB 3.1 Gen 1 with BC 1.2 Charging 1 x HDMI 1.4a (Out) Universal Audio Jack DC-IN (7.4 mm) LEDs microSD card reader Noble wedge lock slot
Warranty	<ul style="list-style-type: none"> 1 year onsite repair/service ProSupport with NBD Onsite Premium Phone Support In-Home

Table 1. Chrome 11 (3189) Product specification (continued)

Features	Chromebook 11 (3189)
	<ul style="list-style-type: none">• 1-4 years warranty extension options.
Multiple Display Options	A connector is available for an external HDMI display up to 1080p
Dock Options	N/A
Regulatory and Environmental Compliance	Regulatory and product certification for US and EMEA

Software

This section provides information about the operating system, commands, and bundled software for Dell Chromebook 11 (3189).

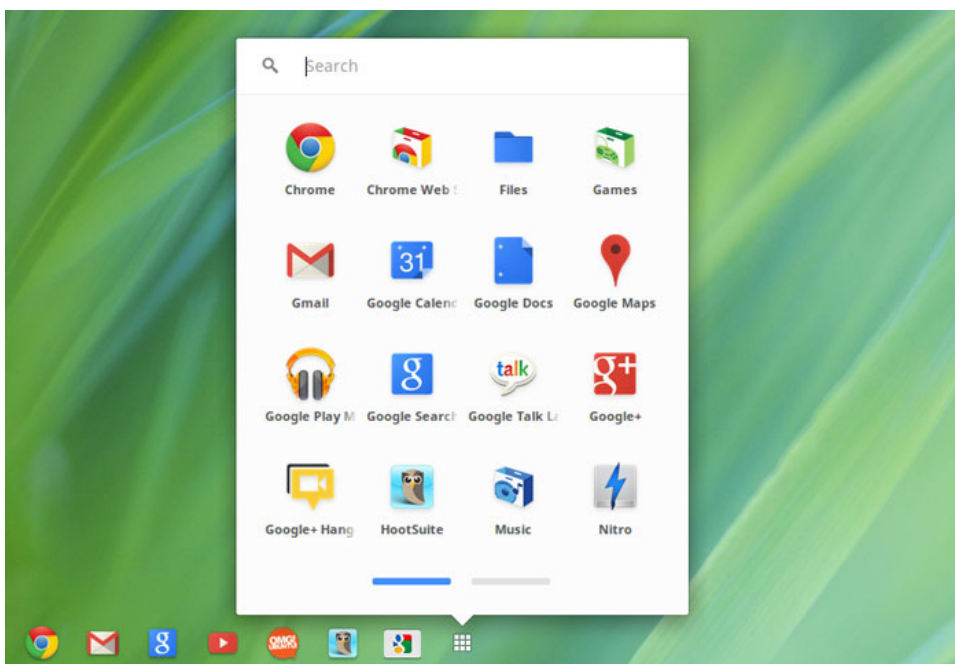
Topics:

- [Operating system](#)
- [View system information](#)
- [Dell activity light](#)

Operating system

This page contains information about the operating system used by the Dell Chromebook 11 (3189).

Chrome OS



Chromebooks are powered by the Google Chrome operating system, based on Google's popular Chrome browser. It has been developed to provide a fast, simple, and more secure computing experience for users who spend most of their time online.

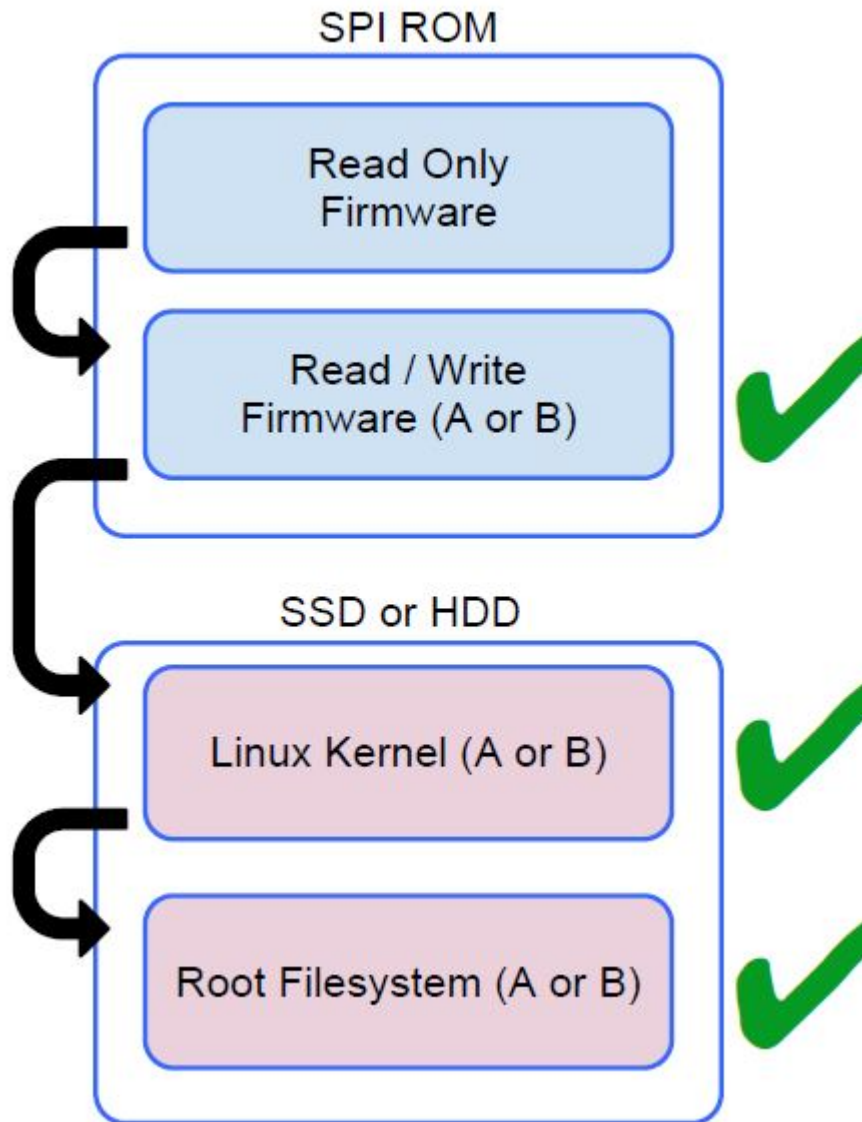
Key Benefits

- Speed
- Simplicity
- Security
- Updatability
- Synchronisability
- High power at low cost
- Easy to learn and use
- Documents, calendar, e-mail, contacts, and tasks available online and offline, and all securely backed-up and synchronised in the cloud.
- Access to the Chrome web app store

- Killer web apps
- The latest Intel Core processors
- Fun games
- Built-in support for popular file types and external devices

For more information about the Chrome OS, please visit the [Chrome OS training page](#).

Verified Boot

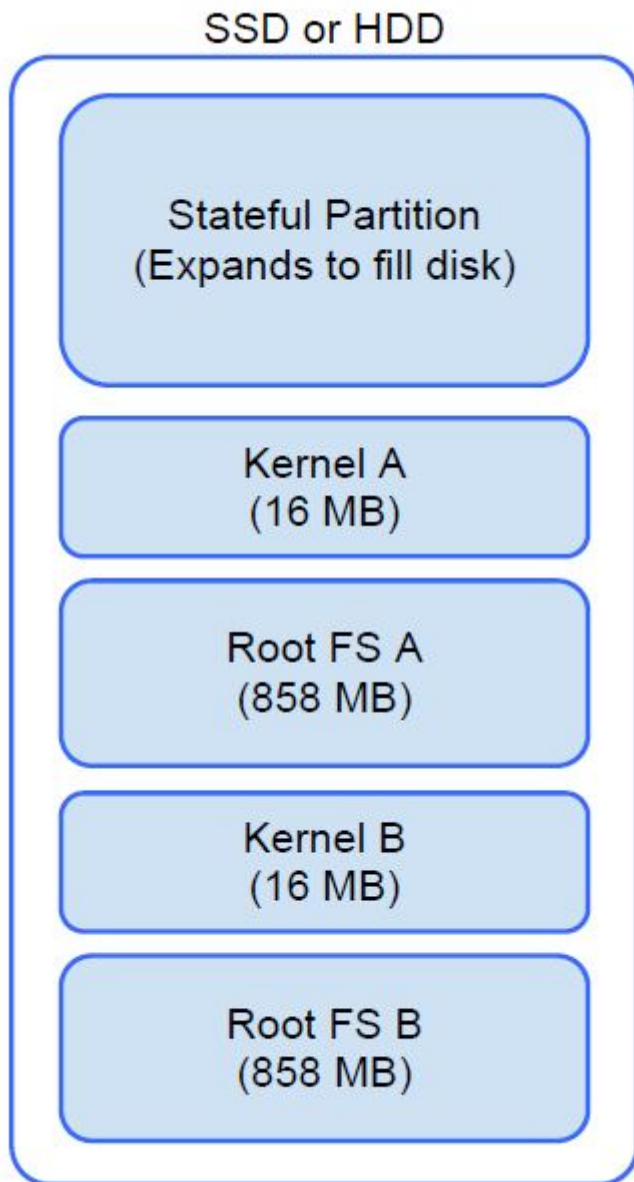


Read Only firmware verifies the integrity of Read/Write (R/W) firmware. R/W firmware verifies the active Linux kernel. During run time, the kernel verifies each block read from disk.

If a verification step fails and there is no backup option, the machine enters recovery mode.

The Developer Mode switch turns off verified boot (at the Kernel stage) to enable users to run Chromium OS (or other OS). The BIOS is always verified.



Disk Partition Map



There are two copies of Chrome OS on disk: an active copy and a backup copy. Each copy consists of a kernel partition and a root file system. The backup copy is updated automatically in the background. Users only need to reboot. The partition contains encrypted user data and is also used in the factory for storing test software.

Developer and Recovery mode

Table 2. Developer and Recovery mode

Developer Mode	Recovery Mode
<p>Developer Mode BIOS screen</p> 	<p>Recovery Mode BIOS screen</p> 
<ul style="list-style-type: none">• Used to boot without verification.• Can be turned on via key combination during boot.• Stateful partition is wiped during transitions.• Used in the factory to boot test image.	<ul style="list-style-type: none">• Allows a user to reinstall the Chrome OS from a USB key or SD card.• Recovery mode is entered if verified boot fails.• A user can force recovery mode via a key combination during boot.

Coreboot and U-boot Custom Firmware

Coreboot (x86 only)

- Memory and chipset initialization
- Open-source, except for MRC binary from Intel.

U-Boot

- Performs verified boot
- Handles recovery and Developer Mode
- Open source code

Normal boot is very fast, as it takes less than 1 second to start loading kernel. Chromebook does not boot other operating systems such as Windows or OS X.

Chrome vs Chromium OS

Table 3. Difference between Chromium and Chrome OS

Difference between Chromium and Chrome OS	
Chromium OS	Chrome OS
<ul style="list-style-type: none">• Is an open source project: http://www.chromium.org/chromium-os• Runs on regular PCs and Chrome devices	<ul style="list-style-type: none">• Is based on Chromium OS• Only runs on the Chrome devices with required hardware features (TPM, RO firmware, recovery button, developer switch).• Includes additional licensed features such as the Netflix plugin, video codecs, and fonts

View system information

This page contains all the information about viewing system information for the Dell Chromebook.

Dell Chromebook 11 (3189) does not support Dell BIOS. Hence, there are several ways to check system specifications depending on the information you are searching for. The table below lists some of the most commonly used methods to view system information and specifications.

Table 4. View system information

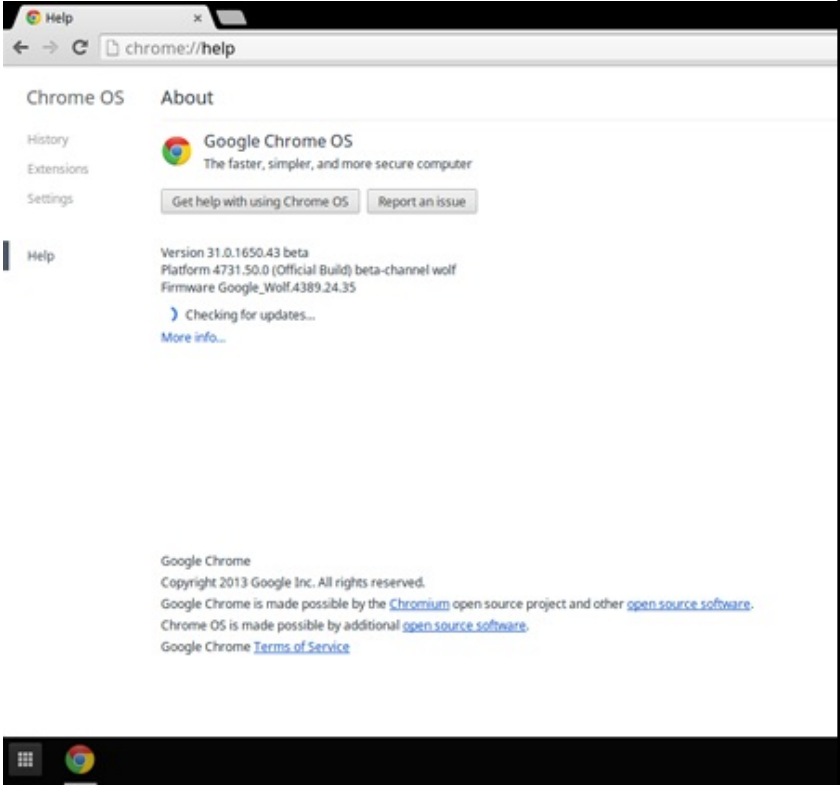
Commands	Action and Purpose	Screenshot
Chrome:help	View basic OS information.	 A screenshot of a Chrome OS interface. The top bar shows 'Help' and a tab for 'chrome://help'. The main content area is titled 'About' and features the Google Chrome OS logo with the tagline 'The faster, simpler, and more secure computer'. Below this are two buttons: 'Get help with using Chrome OS' and 'Report an issue'. A section titled 'Help' lists 'History', 'Extensions', and 'Settings'. The 'About' section displays system information: 'Version 31.0.1650.43 beta', 'Platform 4731.50.0 (Official Build) beta-channel wolf', and 'Firmware Google_Wolf.4389.24.35'. It also shows a status 'Checking for updates...' with a 'More info...' link. At the bottom, there is copyright information for Google Inc. 2013 and links to 'Chromium' open source project, 'open source software', and 'Terms of Service'.

Table 4. View system information (continued)

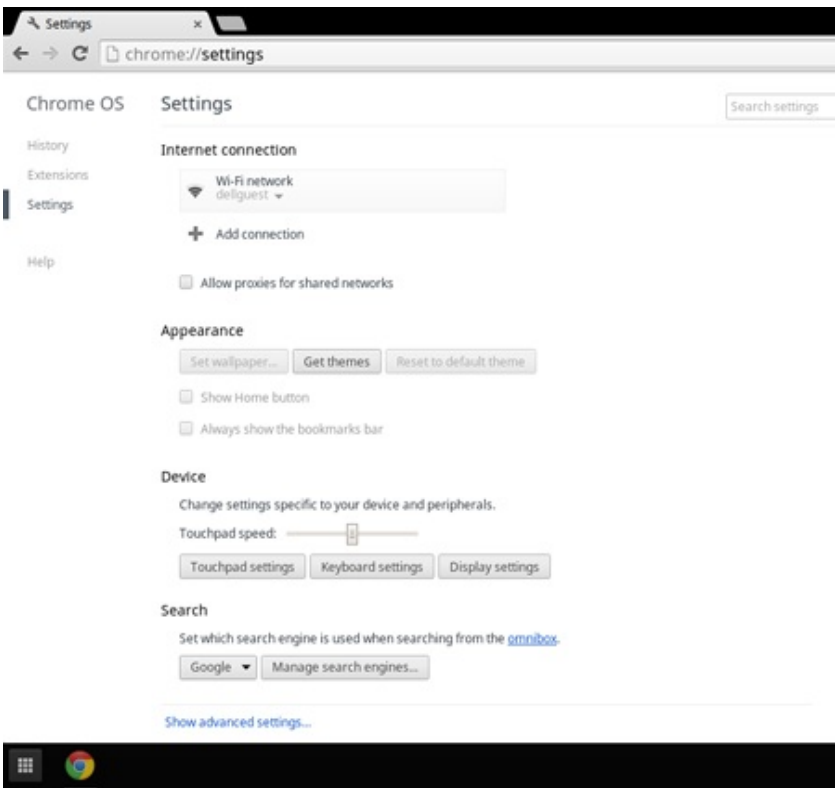
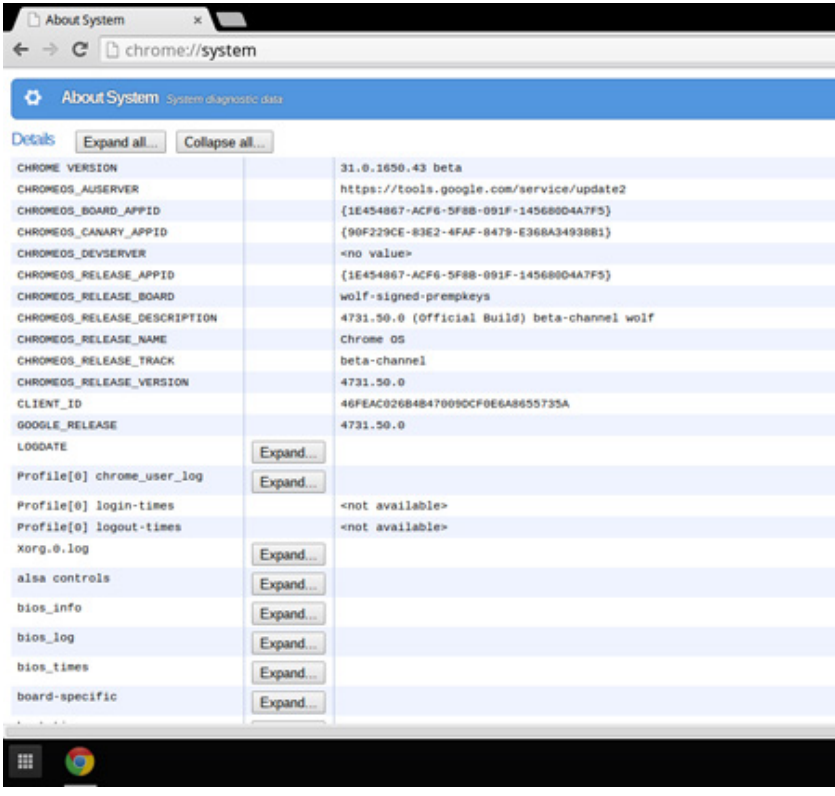

Commands	Action and Purpose	Screenshot
Chrome:settings	View information such as screen resolution options (Device>Display settings), touchpad, and other basic hardware information.	
Chrome:system	View advanced system information such as the Google Chrome version, BIOS information, CPU information, memory information, network status, power supply information, etc.	

Table 4. View system information (continued)

Commands	Action and Purpose	Screenshot
Chrome:net-internals	View advanced networking information.	 A screenshot of the Chrome browser's net-internals page. The address bar shows 'chrome://net-internals/#export'. A red banner at the top says 'capturing events (4)'. A dropdown menu is open, showing options: Export (highlighted), Capture, Import, Proxy, Events, Waterfall, Timeline, DNS, Sockets, SPDY, QUIC, Pipelining, Cache, Modules, Tests, Log Visualizer, HSTS, Logs, Bandwidth, and Prerender. The main content area has a text box that says '...e information (cookies and credentials). ... went wrong here. (These notes will be ... he dump file. Be sure to mention the ... , so investigators know what to look ...' and a link that says '...de data for bug reports'.

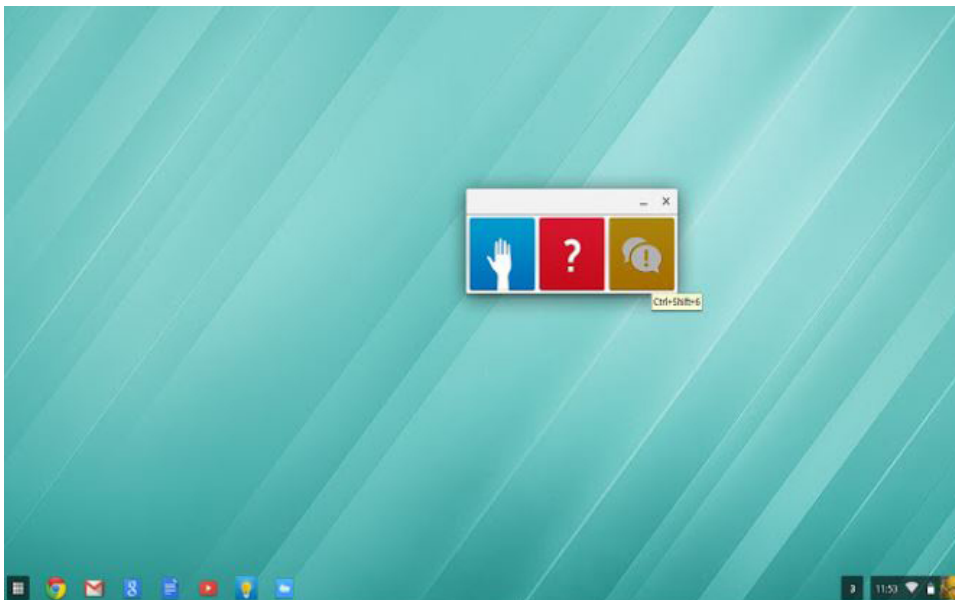
Dell activity light

This page contains all the information about the Dell Bright Light software that is used to control Dell Activity Light.

Overview

Dell Activity Light can be used as an indicator for the interaction between school teacher and student, and Dell has designed a software over this feature. The application will not be factory installed when product RTS, but it can be downloaded and installed via the web-store through the following link: <https://chrome.google.com/webstore/detail/dell-led/klhphccnhmdlnljpdljjhehlmplnmini>





Raise your Hand/Answer Question/Discussion buttons

Students can either click the on-screen button or press keyboard hot key to on/off the Ask question LED. The on-screen button can be the Chrome application in the menu or the shortcut icon on the task bar.



MultiColor Poll

Students can vote with different LED color by either clicking the on-screen button (suggested) or pressing keyboard hot key.



Technology and components

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

Topics:

- [Keyboard](#)
- [Touchpad](#)
- [Integrated microphone](#)
- [Bluetooth](#)

Keyboard

Dell Chromebook 11 (3189) keyboards have a few extra features to help you browse the web effortlessly and efficiently. The keyboard contains a dedicated search key and a new row of web shortcut keys. A standard USB Windows keyboard can also be used with the Chromebook, using the same keyboard shortcuts. The image below shows the keyboard



layout.

Keyboard keys function

The Chrome device keyboard is designed to help you get to the things you need the most. The table below is an overview of the special keys on the top row of the keyboard:

Table 5. Special keys












Special keys	
	Go to the previous page in browser history
	Go to the next page in browser history
	Reload current page
	Enter Immersive mode, which hides the tabs and launcher

Table 5. Special keys (continued)

Special keys	
	Enter Overview mode, which shows all windows
	Decrease screen brightness
	Increase screen brightness
	Mute
	Decrease the volume
	Increase the volume
	Search applications and the web at the same time. On a Chromebook, this key is on the side, where the Caps Lock key is normally located.

Keyboard shortcut keys

Table 6. Shortcut keys

Shortcut keys	
Function	Combination keys
Page up	Press Alt and the up arrow
Page down	Press Alt and the down arrow
Home	Press Ctrl+Alt, and the up arrow
End	Press, Ctrl+Alt and the down arrow
Delete	Press Alt+Backspace
Toggle the bookmark bar	Ctrl+Shift+B
Search current webpage	Ctrl+F
Open a new tab	Ctrl+T
Open a new window	Ctrl+N
Open the link you clicked in a new background tab	Press Alt and click a link
Switch to next tab	Ctrl+Tab
Switch to next window	Switch to next window
Sign out of Google Account	Ctrl+Shift+Q
Close current tab	Ctrl+W






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

Touchpad

This page contains information for Dell Chromebook 11 (3189) touchpad gestures.

The following table lists some gestures and actions supported by the Chromebook touchpad:

Table 7. Touch pad gestures

Touchpad gestures	
Gestures	Explanation
	Simply move your finger across the touchpad.
	Press down on the lower half of the touchpad. Since tap-to-click is enabled by default, you can quickly tap the touchpad to click.
	Click the touchpad with two fingers.
	Place two fingers on the touchpad and move them up and down to scroll vertically, left and right to scroll horizontally. If you have Australian scrolling enabled, move two fingers up to scroll down. (It works in the same way as say, your smartphone or tablet.) If you have multiple browser tabs open, you can also swipe left and right with three fingers to quickly move between tabs.
Swipe	Quickly move two fingers left or right to go backward or forward on web pages or while using apps.
	Click the item you want to move with one finger. With a second finger, move the item. Release both fingers to drop the item at its new location.

Integrated microphone

This page contains all the information about the Dell Chromebook 11 (3189) integrated microphone.

Akustica AKU240 is an HD Voice quality, top port, digital output MEMS microphone in a small 4.0 x 3.0 x 1.0 mm package. The robust digital output stream from the AKU240 is virtually immune to all forms of Radio Frequency Interference (RFI) and Electromagnetic Interference (EMI) allowing the microphone to be integrated anywhere on the platform regardless of proximity to displays, the Wi-Fi antennae, or other sources of interference that would degrade the signal of conventional analog microphones. For the device manufacturer, this translates to a higher degree of design flexibility by providing a consistent SNR level regardless of environment, resulting in shorter design cycles.

The output of the microphone is pulse density modulated (PDM), a single-bit digital output stream designed to enable the multiplexing of stereo microphone data onto a single wire. With a user selectable Left/Right channel option, the AKU240 is ideal for use in multiple microphone applications.

Key features

- Digital MEMS Microphone with PDM (pulse density modulation) output
- Excellent acoustic performance with 63 dB SNR
- Compatible with Microsoft Windows 8 and Intel Ultrabook Requirements for Digital Microphones
- Tightly controlled sensitivity of -26 dBFS +/- 2 dB
- Robust digital-output immune to RF/EM interference
- Matched microphones in frequency and phase response for array applications
- Output supports dual-microphone, single-wire multiplexing - Industry standard microphone interface compatible with multiple codecs.
- Low current power-down mode
- Lead-free surface-mountable and RoHS2 compliant
- Halogen-free in accordance with IEC61249-2-21
- Thin profile, SMT packaging
- Industry-standard package of 4.00 x 3.00 x 1.00 mm

Typical applications



- Ultrabooks
- Mobile phones
- Media tablets
- eReaders
- Microphone arrays
- Webcams and camera modules

Bluetooth

This section outlines the instruction to pair a bluetooth device with your Chrome devices.


Bluetooth technology lets you connect devices wirelessly over short distances. To use the Bluetooth accessories with your Chromebook, first check if your Chromebook supports Bluetooth. You will then need to pair it with the accessory.

To see if you can use the Bluetooth accessories with your Chromebook, click the status area in the lower right corner, where


your account picture appears. If you see the Bluetooth icon  or  in the menu, your Chromebook supports Bluetooth. If you do not see either of these icons, your Chromebook does not support Bluetooth. If your Chromebook supports Bluetooth, it can connect to a wide range of the Bluetooth accessories, including the following:

- Keyboards
- Mice
- Speakers
- Headphones
- Headsets (audio only)

To connect a Bluetooth device with your Chromebook, you need to pair them. Here is how:

1. Sign in to your Chromebook.
2. Click the status area in the lower-right corner, where your account picture appears.
3. Select your Bluetooth status in the menu that appears.
4. If Bluetooth is disconnected, click the disconnected icon.  or click Enable Bluetooth in the menu. Your Chromebook will automatically begin scanning for available Bluetooth devices.
5. Pick the device you want to add from the list of available Bluetooth devices and click Connect.
6. Follow the instructions on the screen to connect your Bluetooth device.
 - If you are connecting a mouse, no PIN is normally required. If you are prompted for a PIN, enter the PIN for your mouse using your Chrome device's keyboard.
 - If you are connecting a keyboard, enter the randomly generated PIN on the keyboard you wish to pair and press Enter.

To confirm that your Bluetooth device is connected, check the Bluetooth status. You should see your device listed there.

 **NOTE:** Just got your Chromebook or Chromebox? If you are turning on your chrome device for the first time and you have a Bluetooth device nearby that is also turned on, your chrome device may automatically detect the device and show you steps to pair it. You will see these instructions only if your chrome device does not already have a similar device connected or its functionality is not built in, like a keyboard or trackpad.

Diagnostic and troubleshooting

This section covers the diagnostics tool and troubleshooting information for field service technicians.


Topics:

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

Basic troubleshooting

This page contains all the information for Dell Chromebook 11 (3189) 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 8. Power issue



Power issues	
Issue	Possible solutions
Chromebook would not Power On	<p>If the Chromebook will not turn on, follow these steps:</p> <ol style="list-style-type: none"> 1. Remove all external devices. <ol style="list-style-type: none"> a. 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. b. If the Chromebook still does not start or exhibits the same problem, do not reconnect anything, and continue troubleshooting. 2. 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. <p> 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.</p> 3. 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. <p> NOTE: You can perform a hard reset by pressing Refresh + Power.</p> 4. Use a different AC adapter with the same power voltage.

Table 8. Power issue (continued)

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

Display issue

Table 9. Display issue

Display issue	
Issue	Possible solutions
Screen is Blank	<p>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:</p> <ol style="list-style-type: none"> 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 10. Audio, screen, and camera issues

Audio, screen, and camera issues	
Issues	Possible solutions
Audio issues	<p>If you hear static, or the volume from the speakers is low when attempting to listen to audio:</p> <ol style="list-style-type: none"> 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. <p>If the speakers are not responding when attempting to listen to audio:</p> <ol style="list-style-type: none"> 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	<p>If the screen is not operating properly (images are too dark or no image is appearing):</p> <ol style="list-style-type: none"> 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.

Table 10. Audio, screen, and camera issues (continued)

Audio, screen, and camera issues	
Camera issues	<p>If the camera is not operating properly (blurry images or poor performance):</p> <ol style="list-style-type: none"> 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 11. Bluetooth issue

Bluetooth issue	
Issue	Possible solutions
Bluetooth issues	<p>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:</p> <ol style="list-style-type: none"> 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 / Hotkeys issues

Table 12. Touchpad / hotkeys issues

Touchpad / Hotkeys issues	
Issue	Possible solutions
Touchpad not responding	<p>If the touch pad has stopped responding, try the following steps to resolve the issue: Try moving the cursor after each step:</p> <ol style="list-style-type: none"> 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	<p>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:</p>

Table 12. Touchpad / hotkeys issues (continued)

Touchpad / Hotkeys issues	
	<ol style="list-style-type: none"> 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 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. 3. Restart the Chrome OS by holding down the power button until the device turns off, and then turn it back on again. 4. Try using the keys in the Guest account. 5. If users experience hotkey issues with the account that is not the owner (primary) account, delete the user account and re-create it. 6. If none of the above steps work, try to Reset or Recover the Chromebook.

Chrome OS issue

Table 13. Chrome OS issue


Chrome OS issues	
He's Dead, Jim! error message	<p>If the Chromebook becomes slow or unresponsive, and the He's Dead, Jim! error message appears, the system could be running low on memory.</p> <p> 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.</p> <ol style="list-style-type: none"> 1. 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. 2. If issue persists, please see He's Dead, Jim! from Google knowledge base.
Chrome OS is missing or damaged	<p>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:</p> <p>Perform a system recovery. See performing Recover Chromebook for more information.</p>
Chrome OS stops responding and nothing moves on the computer display	<p>If the Chrome OS stops responding and nothing moves on the computer display:</p> <ol style="list-style-type: none"> 1. Turn off the computer. 2. Disconnect all peripheral devices, and remove all USB devices and media cards. 3. Disconnect the AC adapter. 4. Press and hold the power button for 10 seconds. 5. Reconnect the AC adapter, and turn on the system. 6. If issue persists, please perform a Reset or Recover the Chromebook.
Lost / Forget Sign in password (Chrome OS)	<p>If you lost/forget the sign-in password to the Chromebook:</p> <ol style="list-style-type: none"> 1. Check if this is a managed device (Enterprise enrolled device).

Table 13. Chrome OS issue (continued)

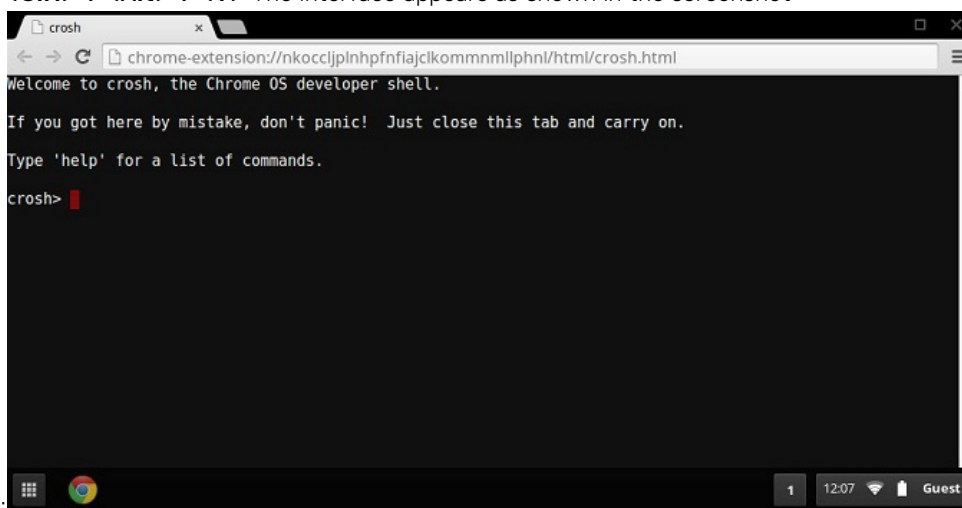
Chrome OS issues	
	<ol style="list-style-type: none"> a. If this is a managed device, please contact the administrator to have them reset the password via Google Admin Console. b. If this is not a managed device, please proceed with the following steps: <ol style="list-style-type: none"> 2. Sign in as 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 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 14. Help commands

Command	Purpose
exit	Exits the CROSH Shell.
help	Displays this help.
help_advanced	Displays the help for more advanced commands, used for debugging.
ping	[-c count] [-i interval] [-n] [-s packetsize] [-W waittime] — Sends ICMP ECHO_REQUEST packets to a network host. If is "gw", then the next hop gateway for the default route is used. It works just 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 15. 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.

Table 15. Advanced help command (continued)

Command	Purpose
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 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.
tracepath [-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:

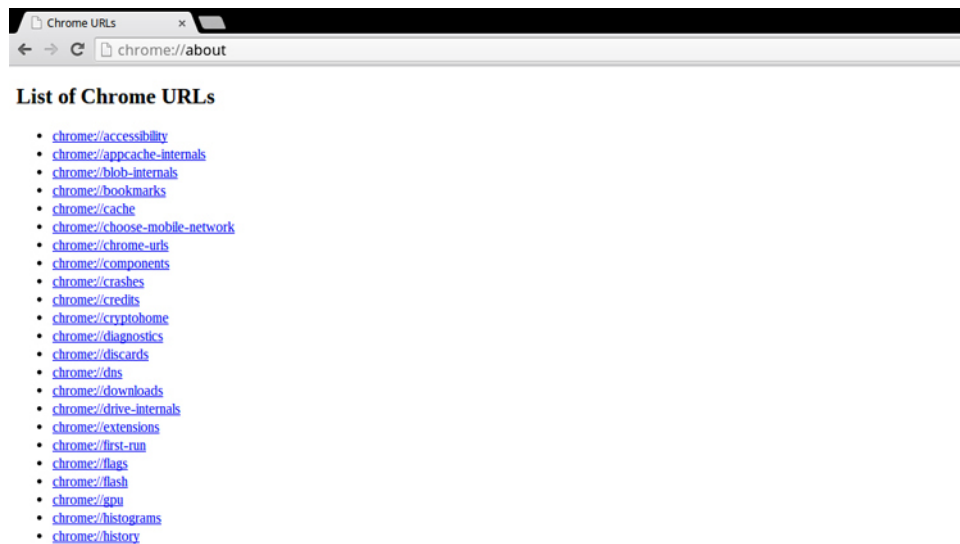


Table 16. Chrome browser shortcuts

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:

Table 17. Helpful chrome commands

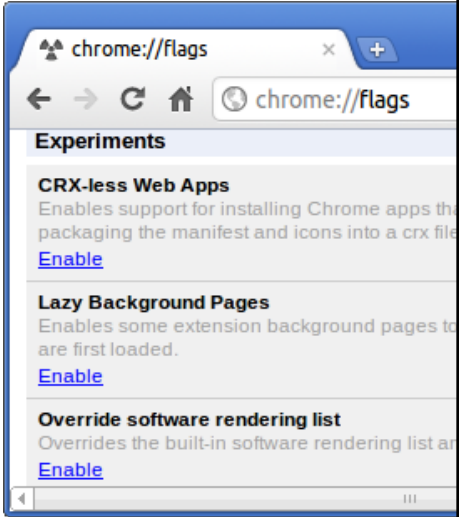
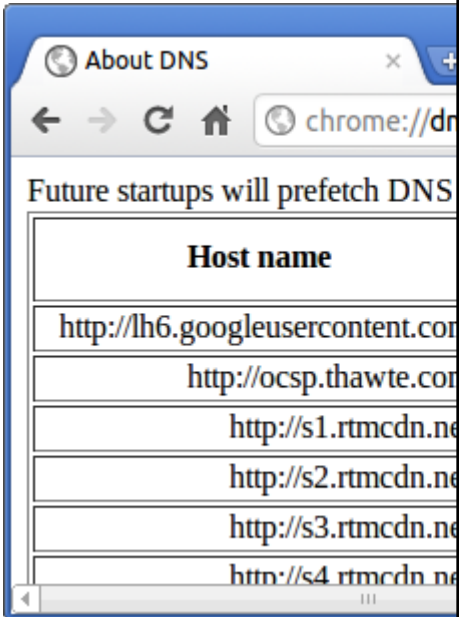
Chrome Commands	Purpose	Screenshot
chrome://flags	From here you can enable some of the experimental features that are hidden in the Google Chrome browser. Please note that as mentioned on this page, since these are experimental, these might not work as expected and might cause issues. Enable these features, and use it at your own risk.	
chrome://dns	This displays the list of hostnames for which the browser will prefetch the DNS records.	

Table 17. Helpful chrome commands (continued)

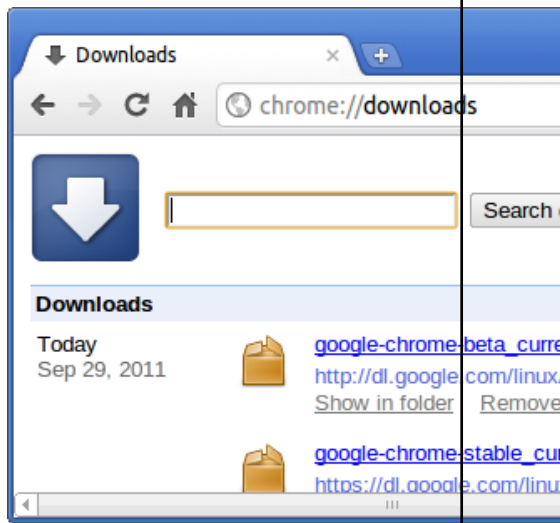
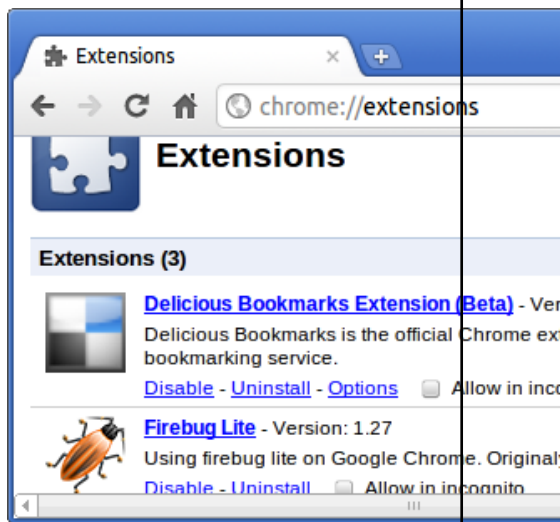
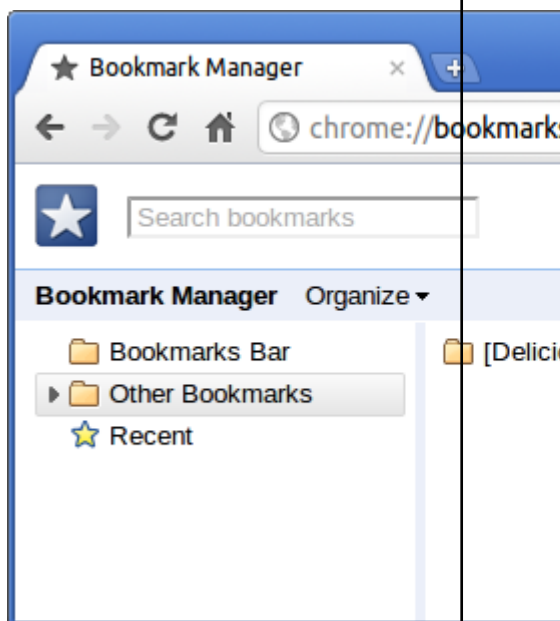
Chrome Commands	Purpose	Screenshot
chrome://downloads	This is also available from the Menu > Downloads. Shortcut key is Ctrl+J.	
chrome://extensions	This is also available from the Menu > Tools > Extensions.	
chrome://bookmarks	This is also available from the Menu > Bookmarks > Bookmark Manager. Shortcut key is Ctrl+Shift+O.	

Table 17. Helpful chrome commands (continued)

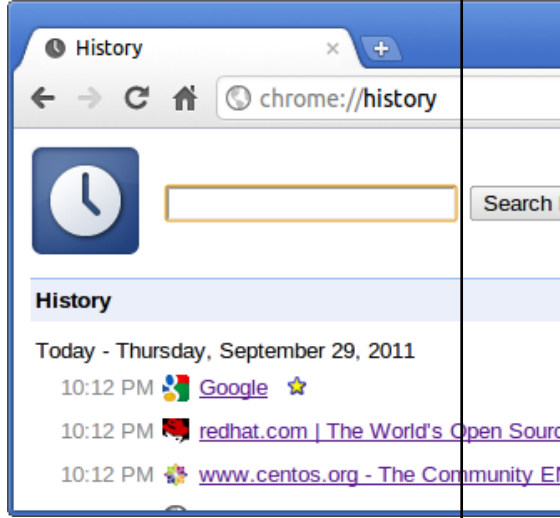
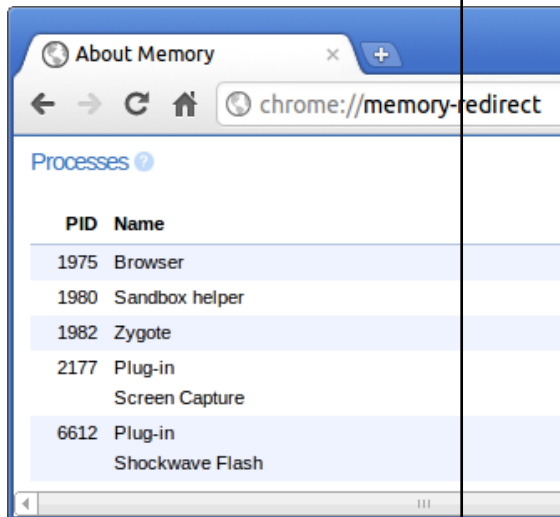
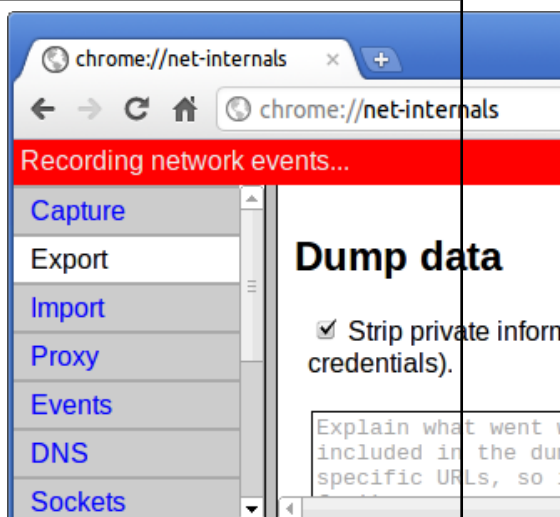
Chrome Commands	Purpose	Screenshot
<code>chrome://history</code>	This is also available from the Menu > History. Short cut key is Ctrl+H.	
<code>chrome://memory</code>	This will redirect to "chrome://memory-redirect/". This will display the memory used by the Google Chrome browser. This also displays all the process related to browser with their PID, process name, and the memory it takes.	
<code>chrome://net-internals</code>	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. <code>chrome://plugins/</code> .	

Table 17. Helpful chrome commands (continued)

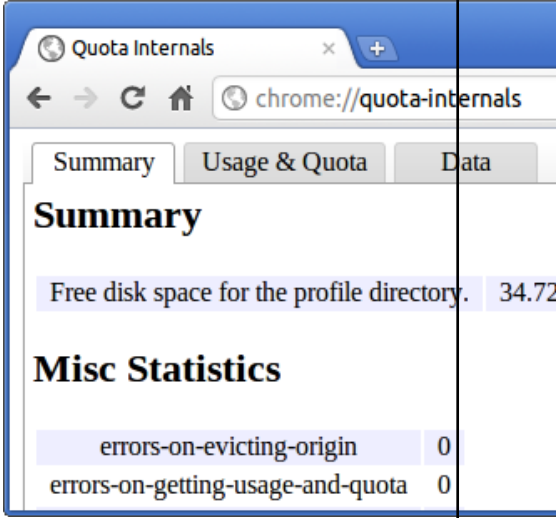
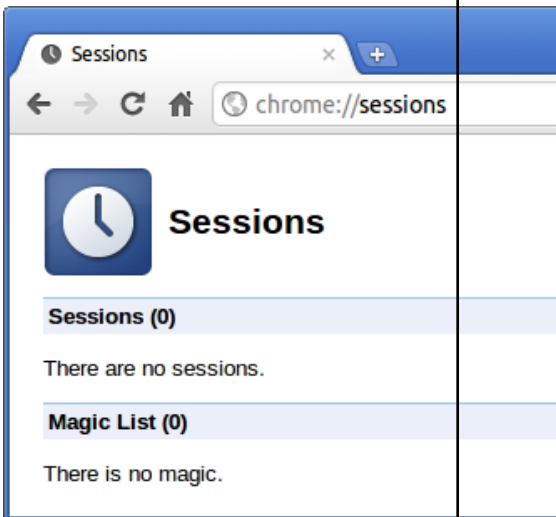
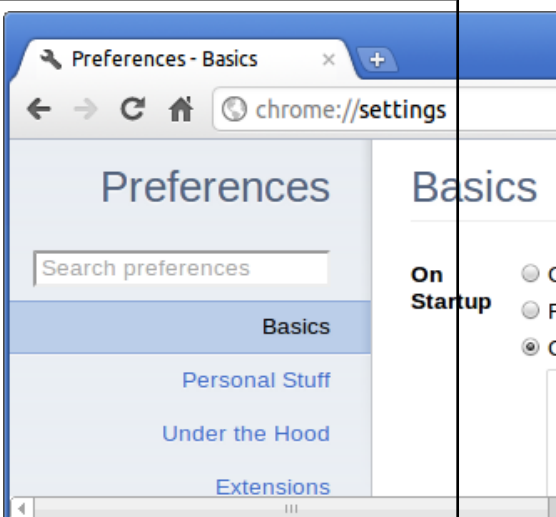
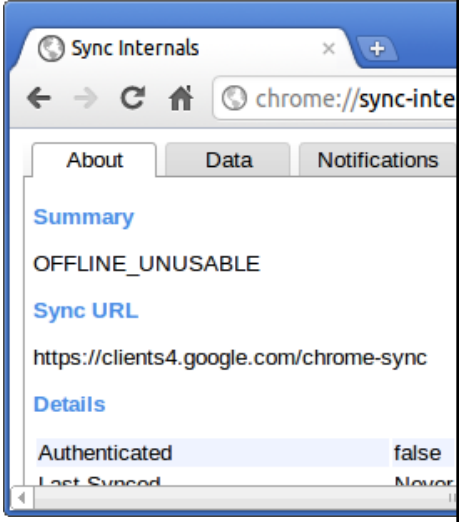

Chrome Commands	Purpose	Screenshot
<code>chrome://quota-internals</code>	This gives information about the disk space quote used by the browser, including the breakdown of how much space the individual websites took under temporary files.	
<code>chrome://sessions</code>	This displays the number of sessions and magic list that are currently running.	
<code>chrome://settings</code>	This is also available from the Menu > Options (on Windows), and Menu > Preferences (on Linux). From here you can control various browser related settings.	

Table 17. Helpful chrome commands (continued)

Chrome Commands	Purpose	Screenshot
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

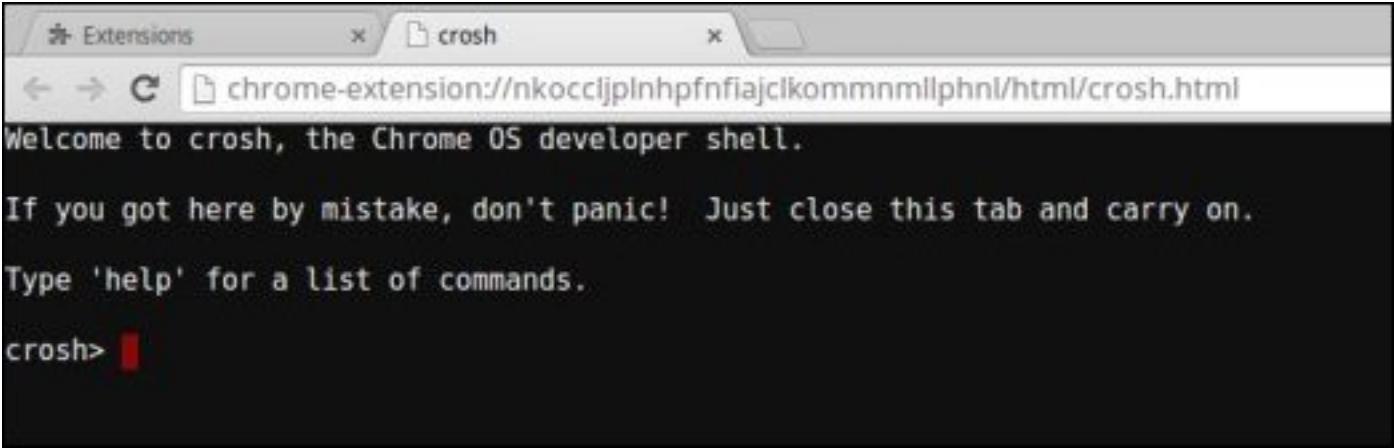
This page contains information about the most commonly used CROSH commands to diagnose the Dell Chromebook 11 (3189). Below are some of the most commonly used CROSH commands to troubleshoot a hardware issue.

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

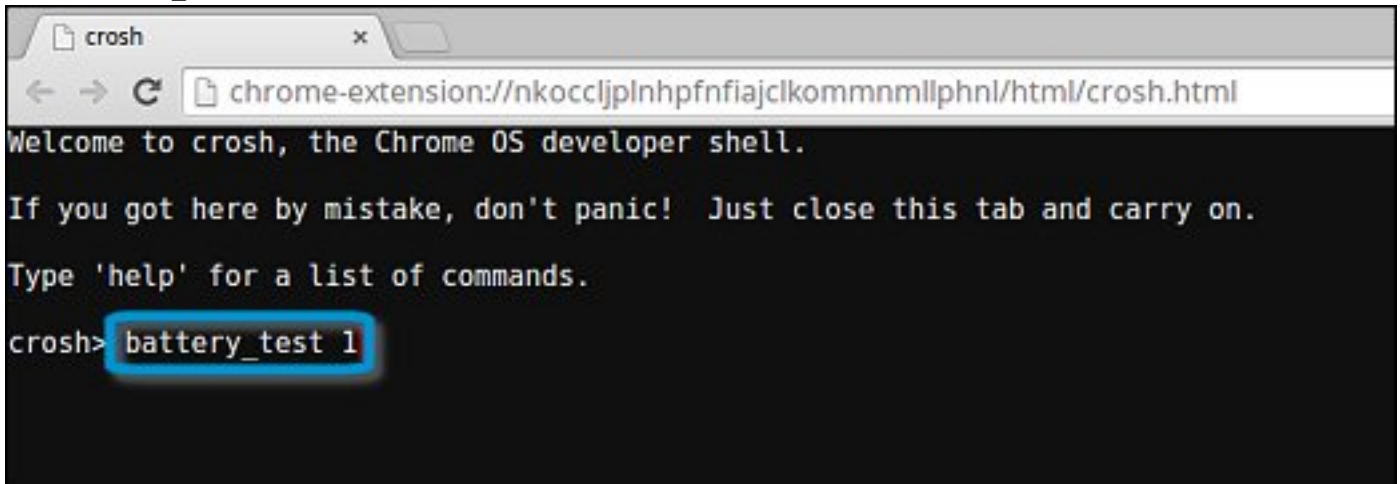
Check battery charging status

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.

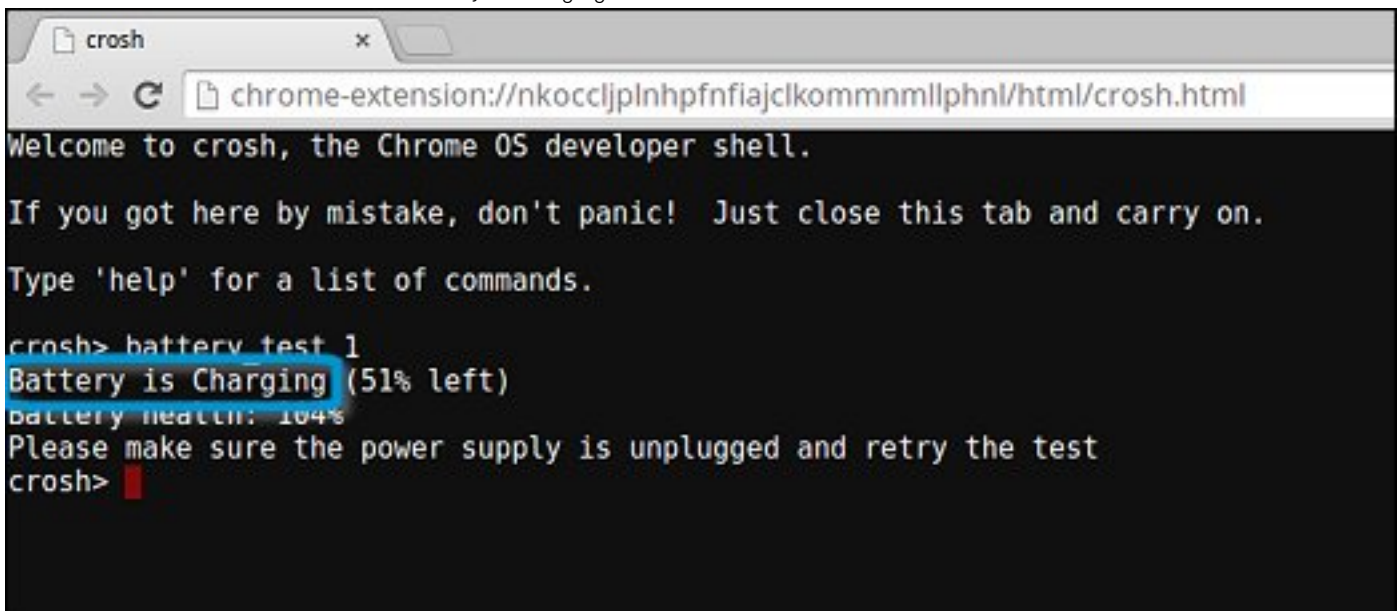


5. Type `battery_test 1` into CROSH, and then press **Enter**.



```
crosh> battery_test 1
```

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



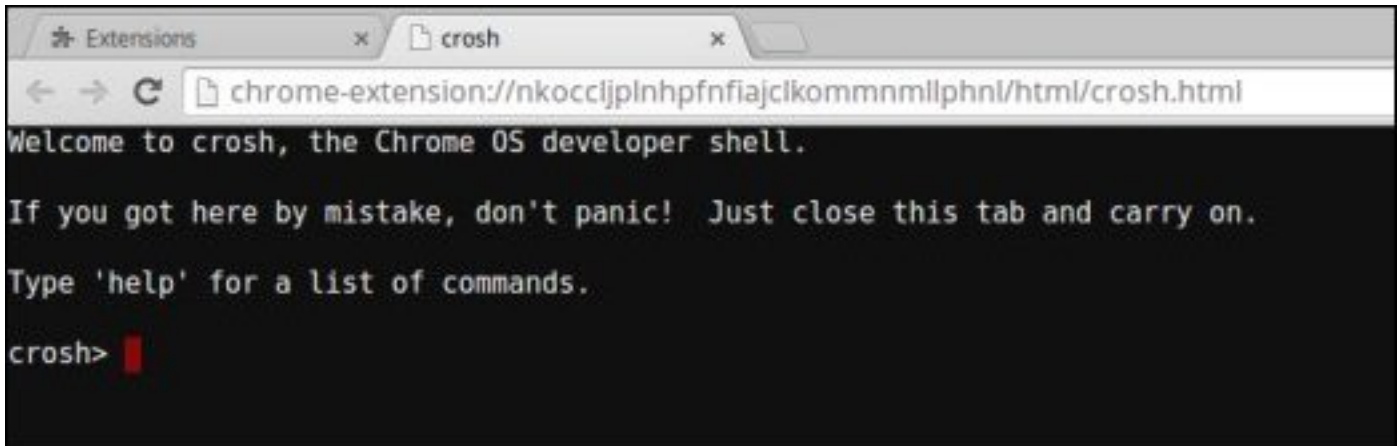
```
crosh> battery_test 1
Battery is Charging (51% left)
battery health: 104%
Please make sure the power supply is unplugged and retry the test
crosh> 
```

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.



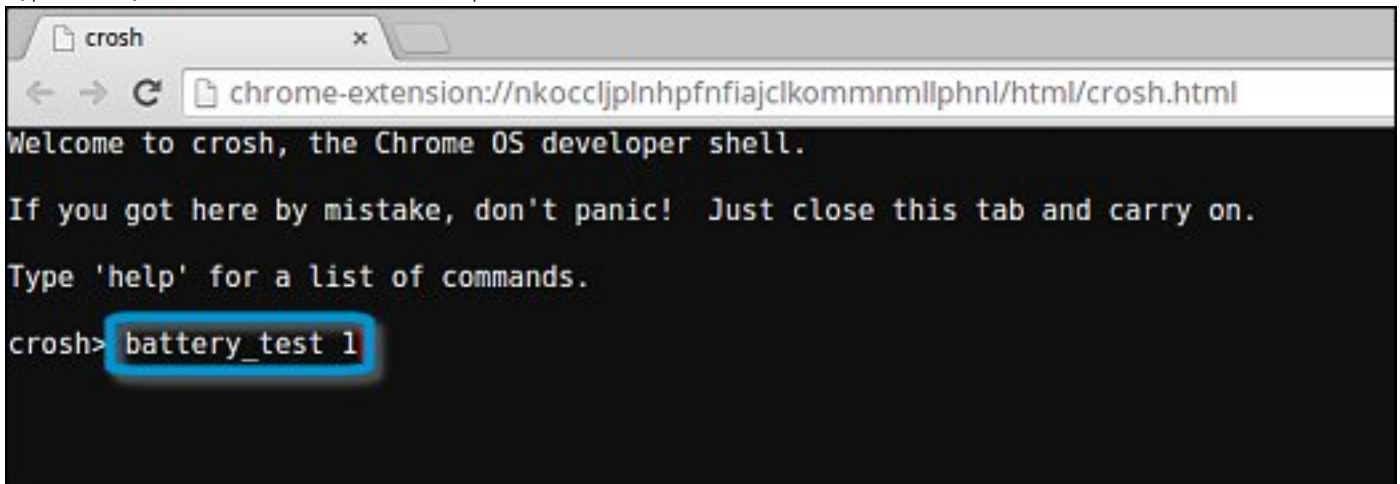
```
chrome-extension://nkoccljplnhpfnfajclkommmnmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

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.



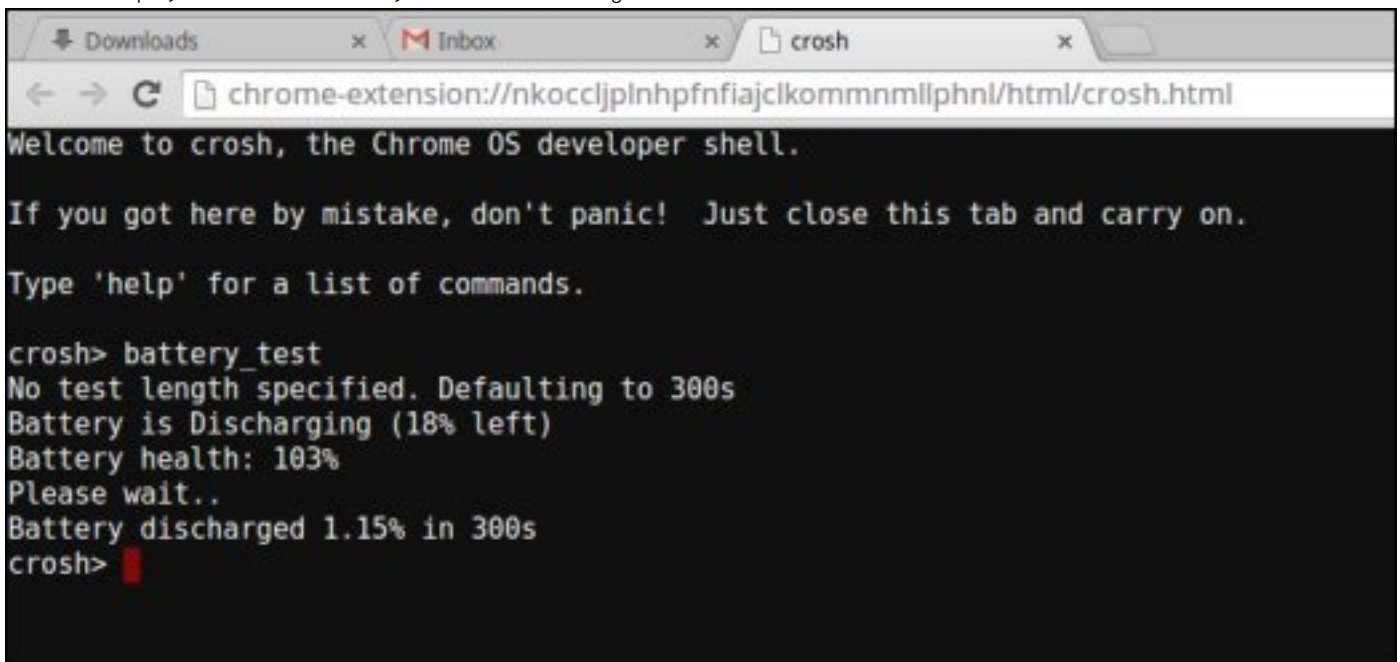
```
chrome-extension://nkoccljplnhpfnfajclkommmnmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

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> 
```

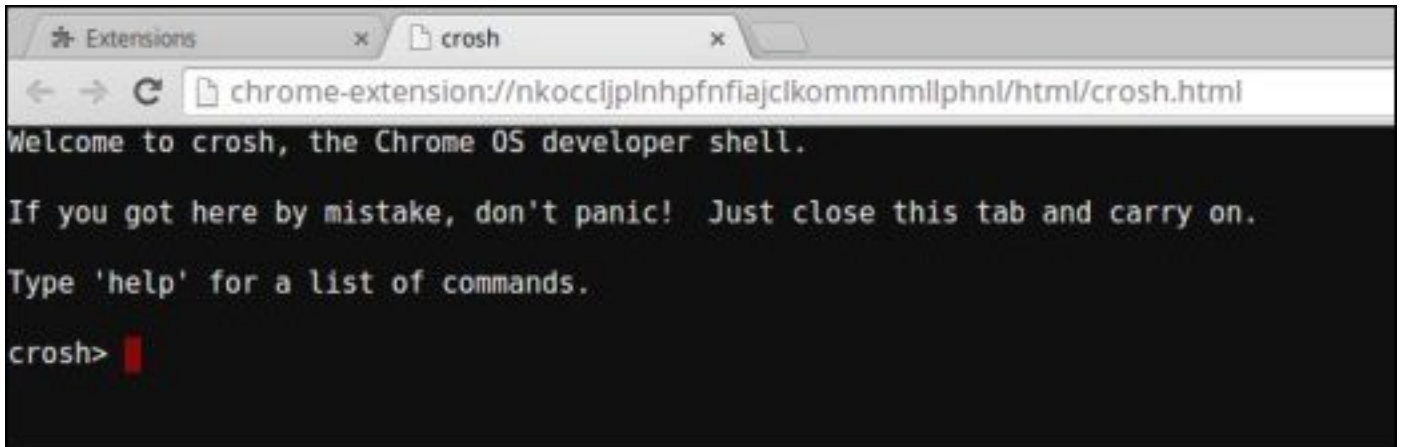
- If the Battery health percentage is greater than 50%, the battery is within the expected wear limits.
- If the Battery health percentage is equal to or less than 50% and the battery is less than a year old, the battery is outside expected wear limits and might need to be replaced.
- If the test results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

Checking memory

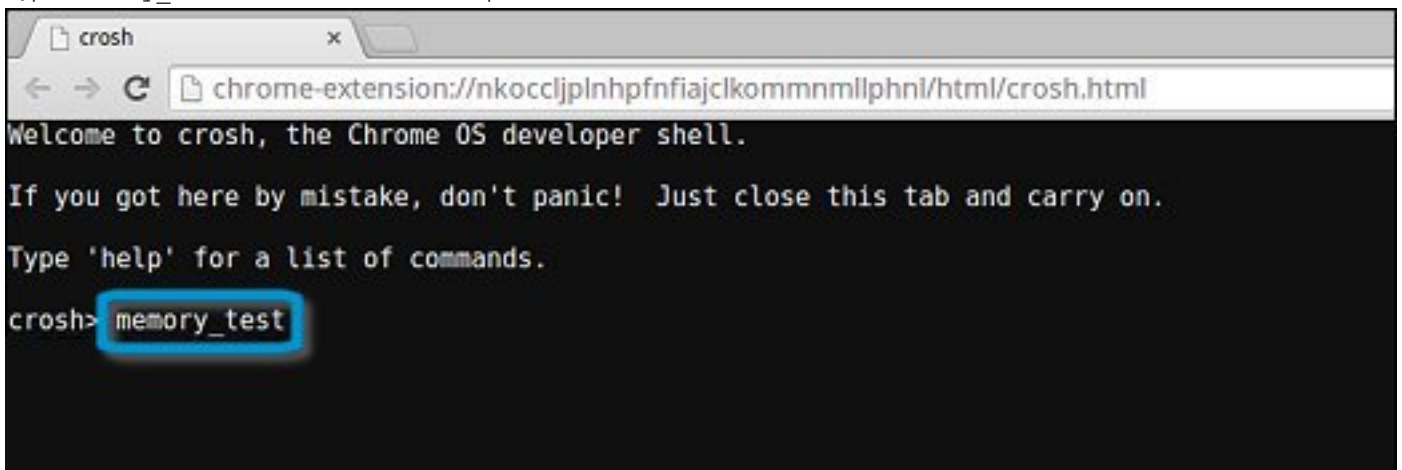
Follow the steps below to perform a memory check for Chromebook:

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

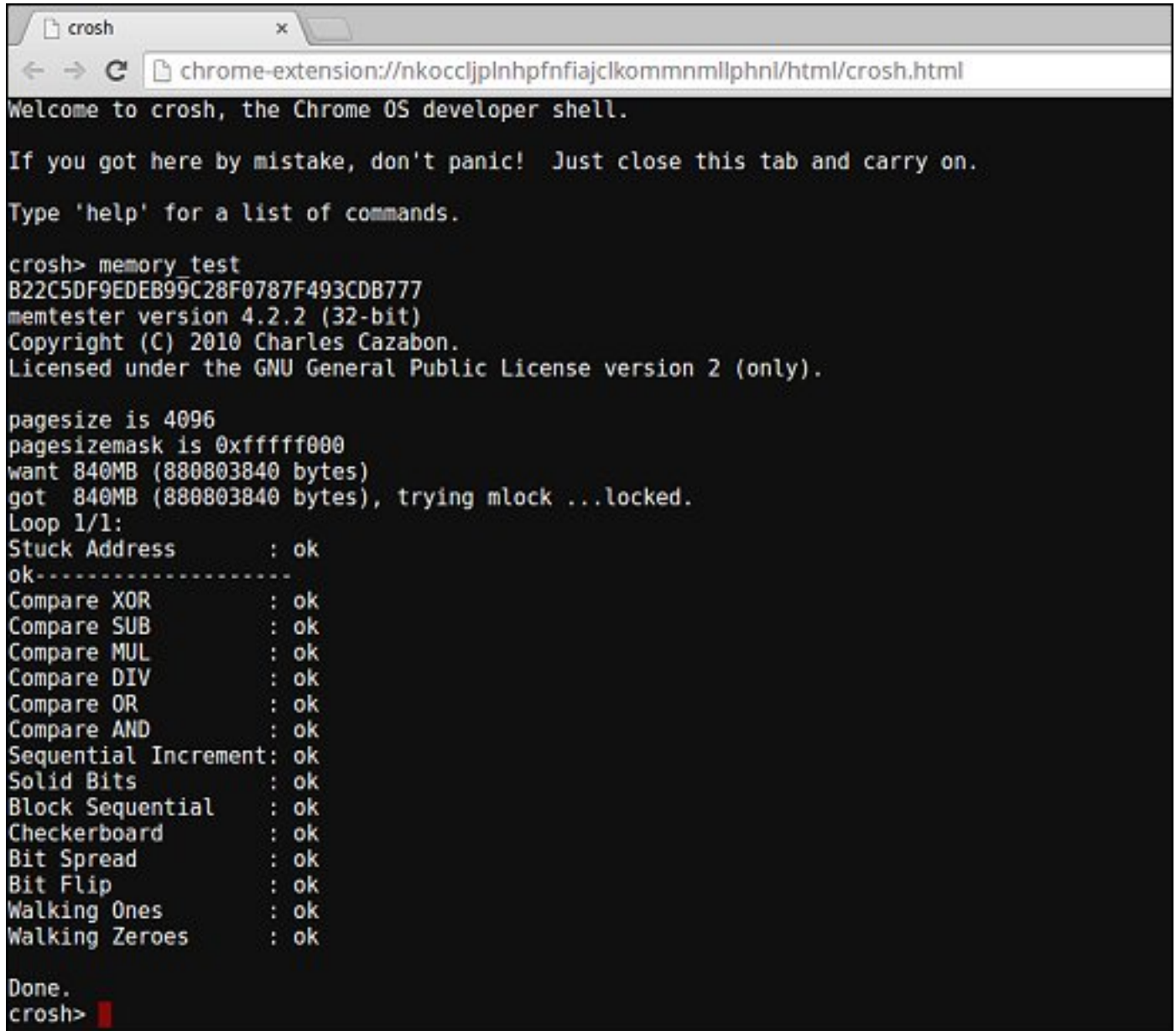
1. Turn on and sign in to Chromebook.
2. Open the Chrome browser.
3. Press CTRL + ALT + T to open CROSH.



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.



```
chrome-extension://nkoccljplnhpfnfajclkommmllphnl/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.

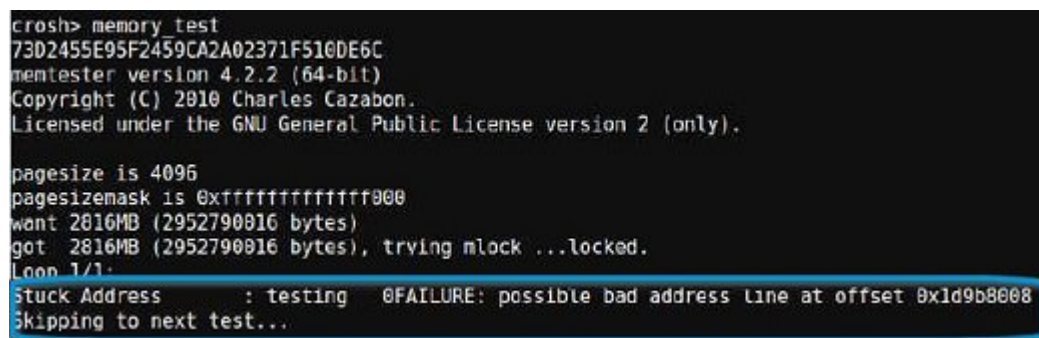
Type 'help' for a list of commands.

crosh> 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).

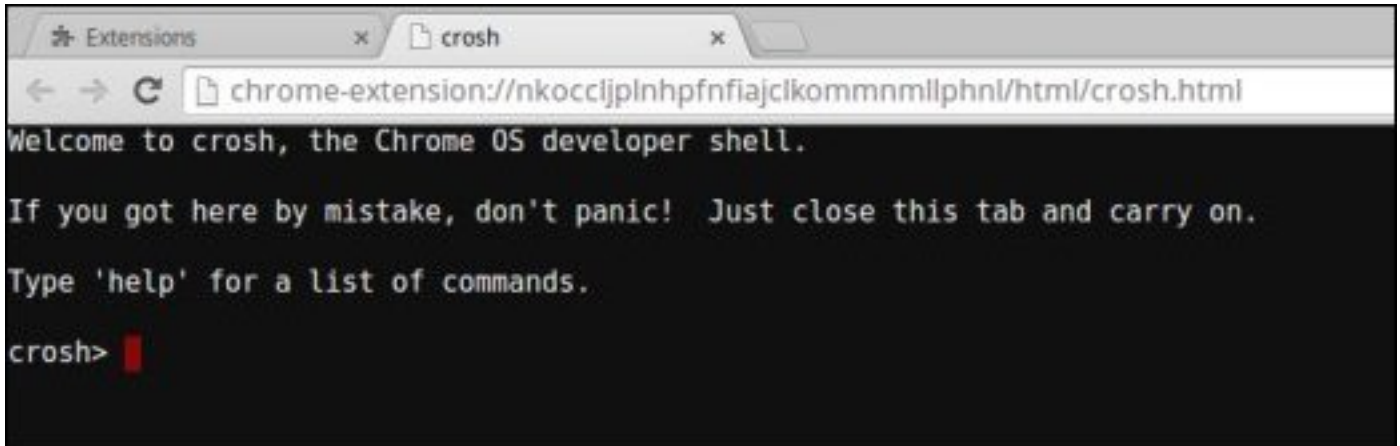
pagesize is 4096
pagesizemask is 0xfffffffff000
want 2816MB (2952790016 bytes)
got 2816MB (2952790016 bytes), trying mlock ...locked.
Loop 1/1:
Stuck Address      : testing 0FAILURE: possible bad address line at offset 0xd9b8008
Skipping to next test...
```

Checking network status

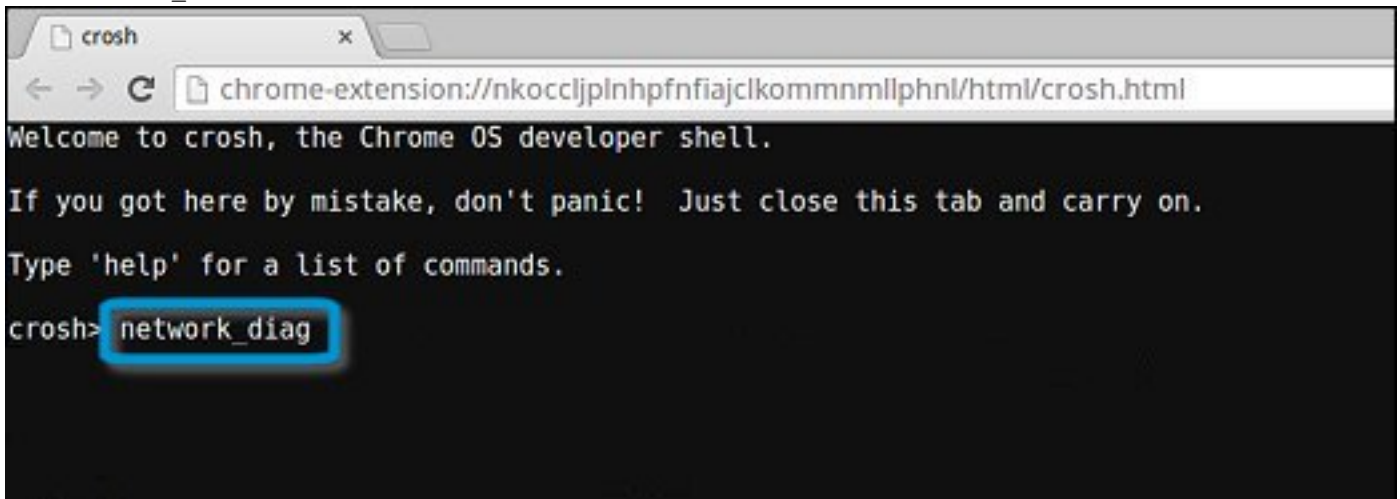
If you are having trouble connecting to the Internet, use the steps in one or more of the following sections to test the network adapter:

Follow the instruction to gather the information about the network and diagnose the network errors.

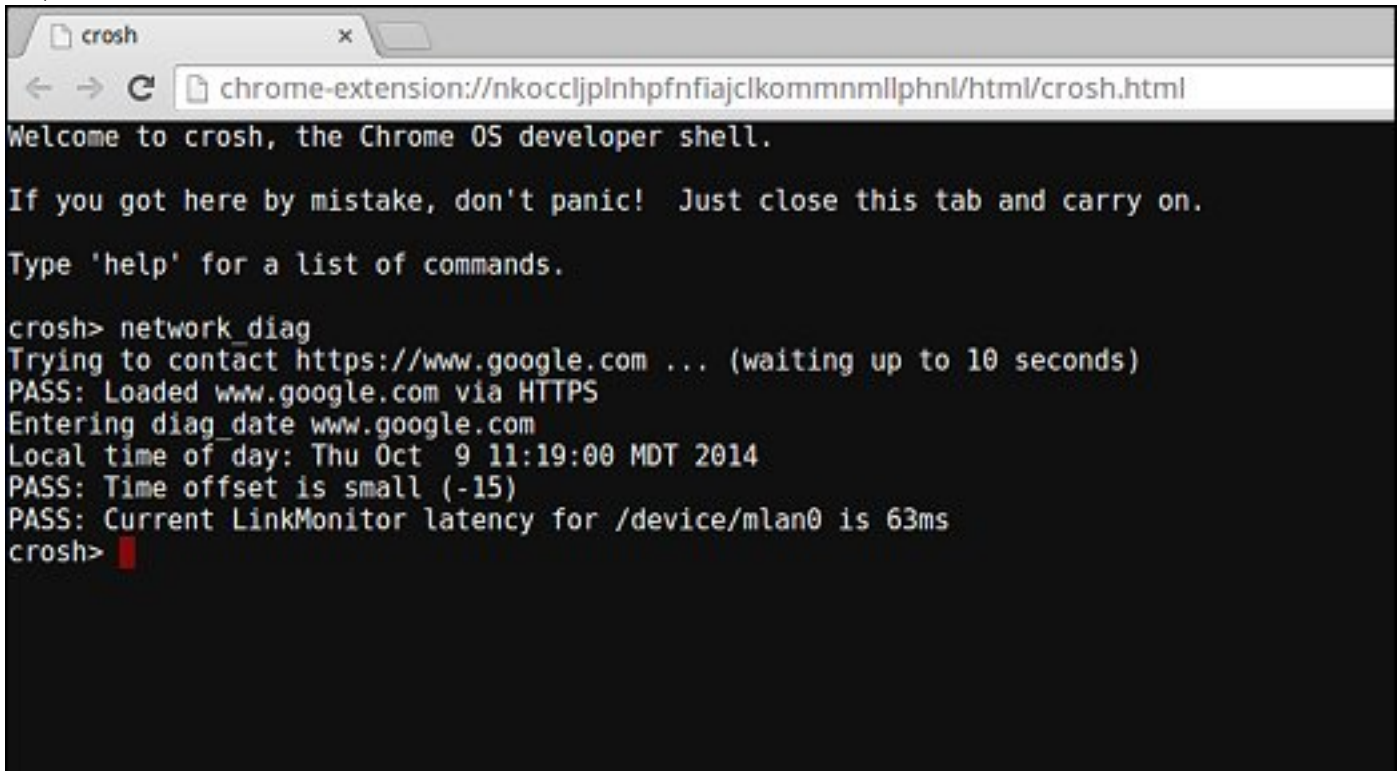
1. Turn on and sign in to Chromebook.
2. Open the Chrome browser.
3. Press CTRL + ALT + T to open CROSH.



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



- 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 'chrome-extension://nkoccljplnhpfnfiajclkommmmlphnl/html/crosh.html'. The main content area is a black terminal window with white text. It displays a welcome message, instructions, and the output of the 'network_diag' command. The command output shows successful connections to https://www.google.com via HTTPS, the local time as Thu Oct 9 11:19:00 MDT 2014, a time offset of -15, and a LinkMonitor latency of 63ms for /device/mlan0.

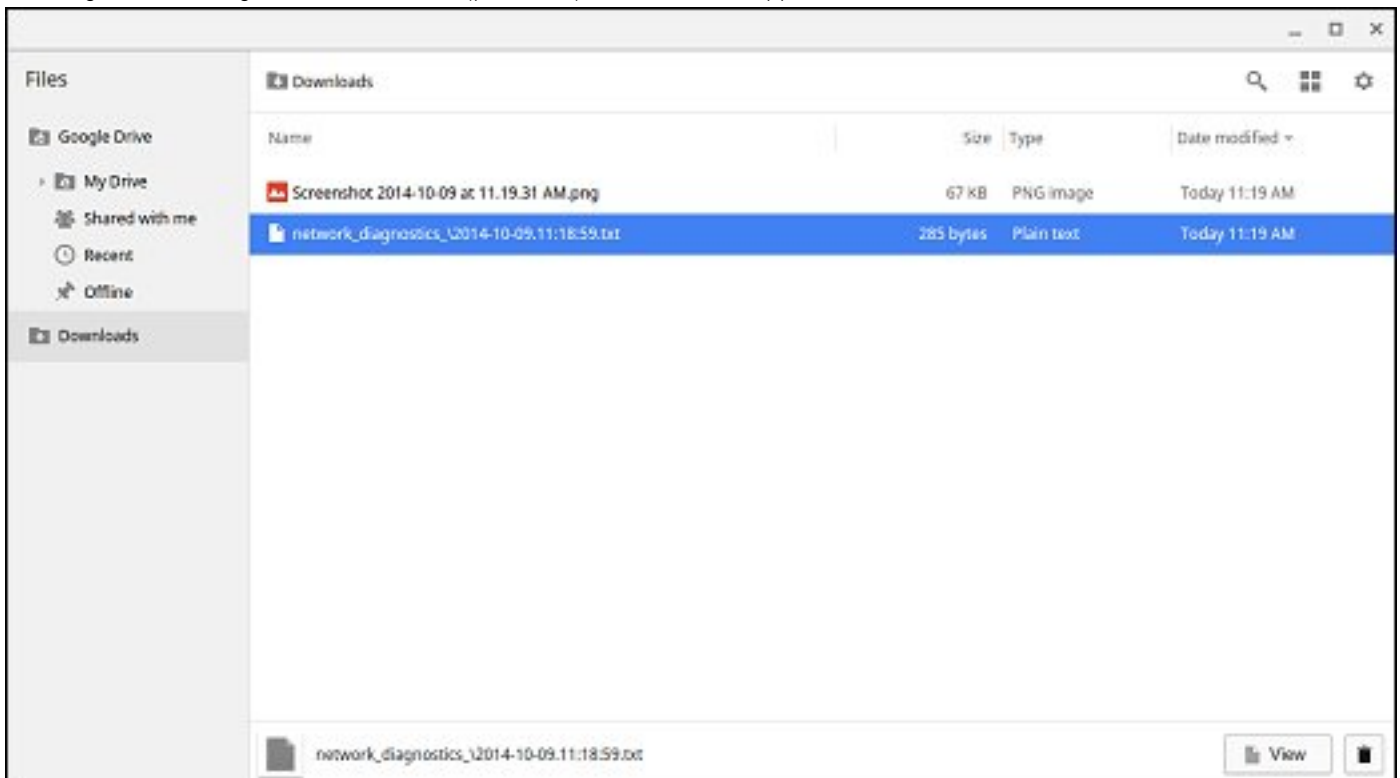
```
crosh
chrome-extension://nkoccljplnhpfnfiajclkommmmlphnl/html/crosh.html
Welcome to crosh, the Chrome OS developer shell.

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

Type 'help' for a list of commands.

crosh> 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>
```

- 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 any key to continue
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
Enter get device list
```

Reset Chromebook

This page contains all information about resetting Dell Chromebook 11 (3189).

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:

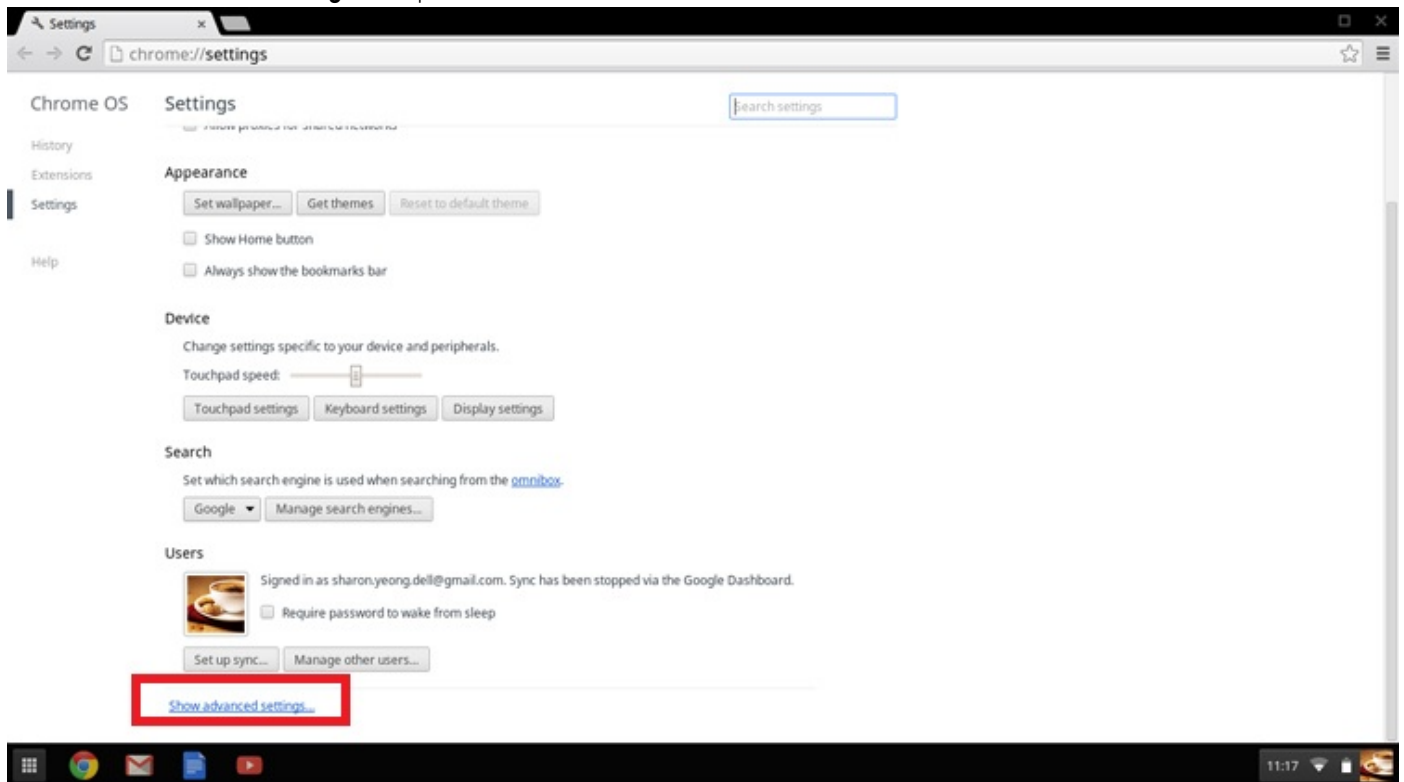
1. Click the status area in the lower-right corner, where your account picture appears.



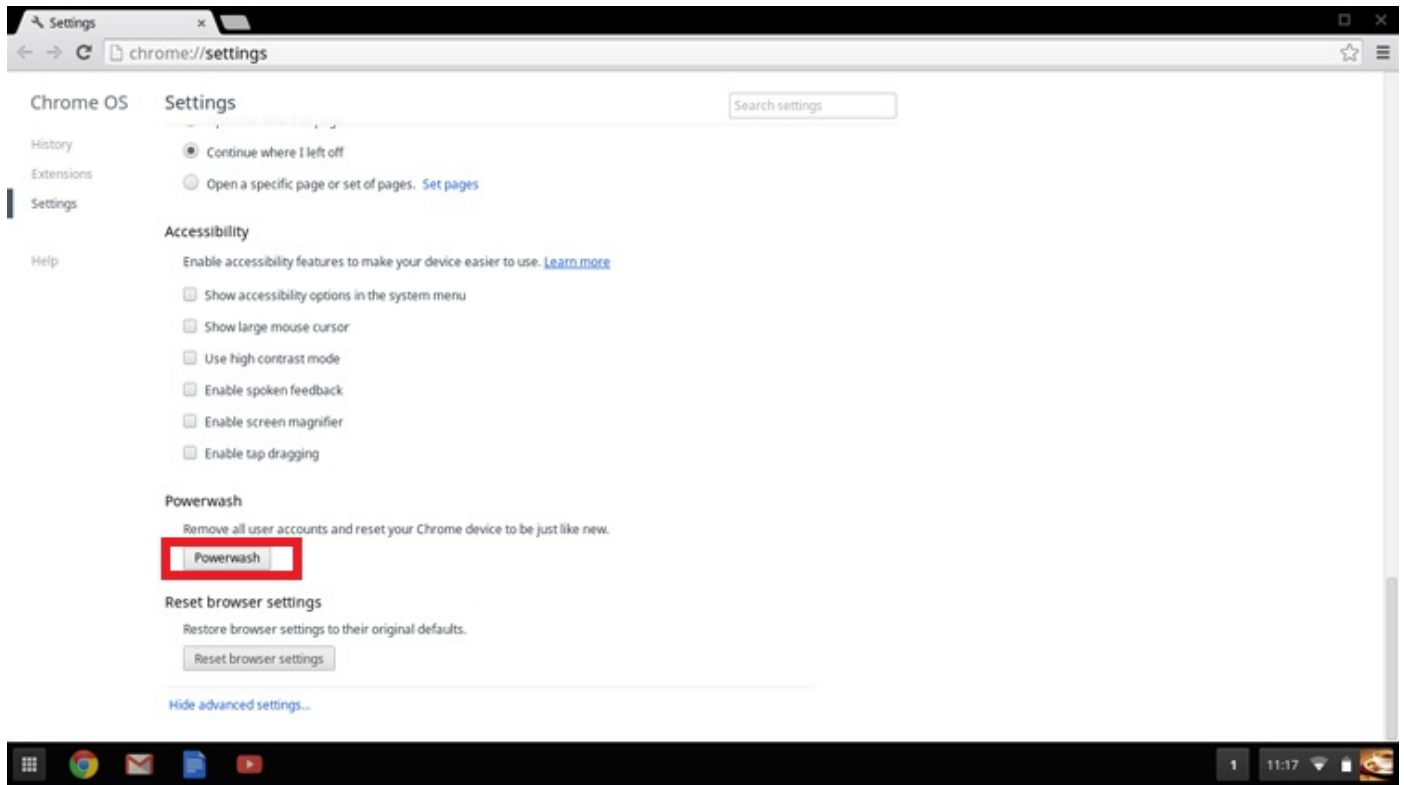
2. Click **Settings** as highlighted from the screenshot below.



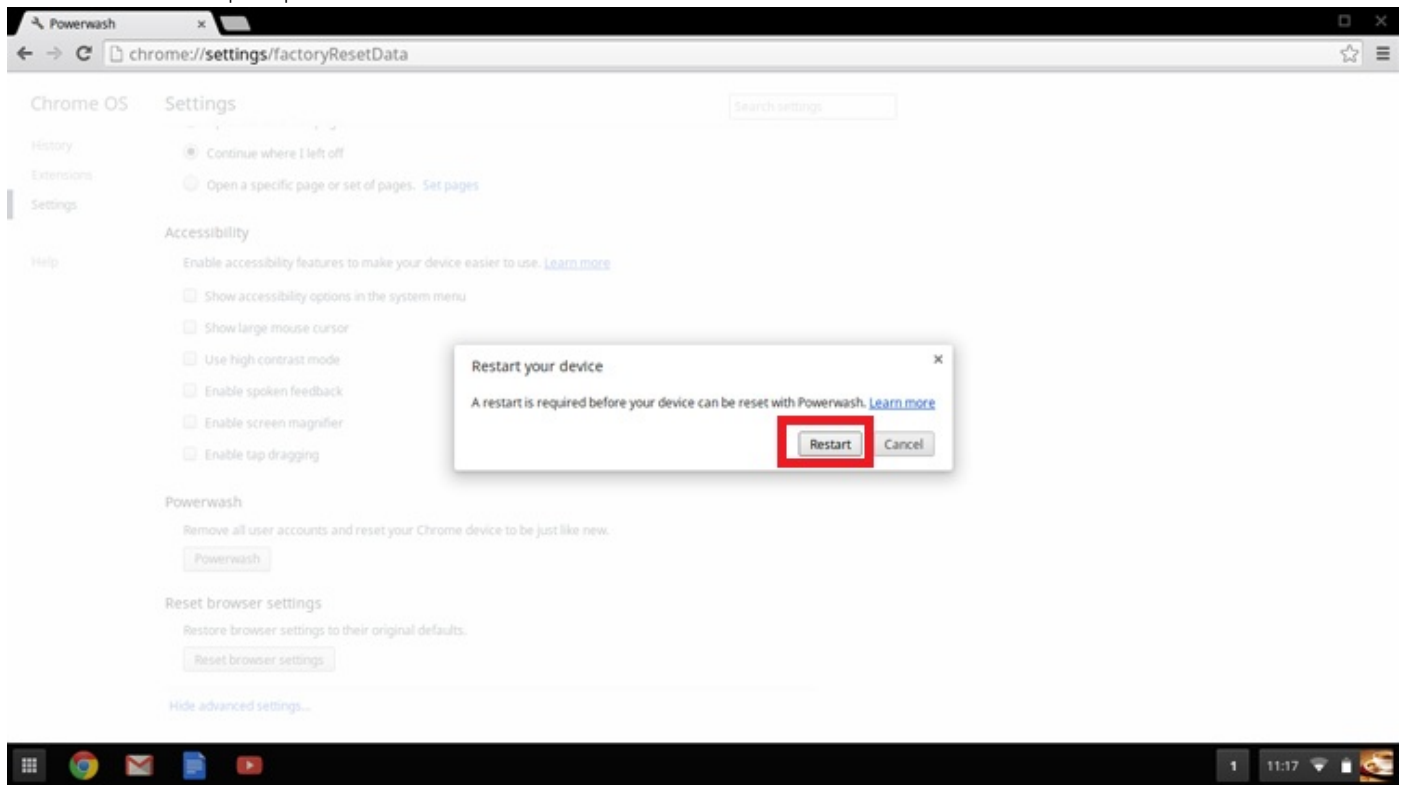
3. Click **Show advanced settings** to expand the menu.



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 Chromebook 11 (3189).

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 18. USB flash drive or SD card

Operating System	Instructions
Chrome Device Instructions	<p>Create a recovery flash drive by using the Image Burner. The tool may not be available in all languages.</p> <ol style="list-style-type: none">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. <p>NOTE: When recovering your Chromebook, make sure to create the recovery flash drive on the same model.</p>
Windows Instructions	<ol style="list-style-type: none">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	<p>Create a recovery flash drive by using the Recovery Tool. The tool may not be available in all languages.</p> <ol style="list-style-type: none">1. Click this link to download the Recovery Tool.

Table 18. USB flash drive or SD card (continued)

Operating System	Instructions
	<p>2. Run the tool and follow the instructions that appear on your screen.</p> <p>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.</p>
Linux Instructions	<p>Create a recovery flash drive by using the Recovery Tool. The tool may not be available in all languages.</p> <ol style="list-style-type: none"> 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 19. 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.	<p>Try the following steps:</p> <ol style="list-style-type: none"> 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.

Table 19. Troubleshooting tips (continued)

Question	Solution
	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.
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.

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.