

Inspiron 24 5000

Service Manual



Notes, cautions, and warnings

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

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

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

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Before working inside your computer

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

Topics:

- [Before you begin](#)
- [Safety instructions](#)
- [Recommended tools](#)
- [Screw list](#)

Before you begin

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

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

3. Disconnect your computer and all attached devices from their electrical outlets.
4. Disconnect all attached network devices and peripherals, such as keyboard, mouse, and monitor from your computer.
5. Remove any media card and optical disc from your computer, if applicable.
6. After the computer is unplugged, press and hold the power button for 5 seconds to ground the system board.

 **CAUTION:** Place the computer on a flat, soft, and clean surface to avoid scratches on the display.

7. Place the computer face down.

Safety instructions

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

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

 **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 electrical outlet.

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

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

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

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

 **CAUTION:** When you disconnect a cable, pull on its connector or on its pull tab, not on the cable itself. Some cables have connectors with locking tabs or thumb-screws that you must disengage before disconnecting the

cable. When disconnecting cables, keep them evenly aligned to avoid bending any connector pins. When connecting cables, ensure that the ports and connectors are correctly oriented and aligned.

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

Recommended tools

The procedures in this document may require the following tools:

- Phillips screwdriver
- Plastic scribe

Screw list

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Camera	Middle frame	M3x5	2	
Chassis fan	Middle frame	M3x5	3	
Front bezel	Middle frame	Step-type M3x5.6	4	
I/O board	Middle frame	M3x5	4	
Hard-drive bracket	Middle frame	M3x5	1	
Hard drive	Hard-drive bracket	M3x3.5	3	
I/O panel	Middle frame	M3x5	9	
I/O board	Middle frame	M3x5	4	
I/O bracket	Middle frame	M3x5	9	
Inner frame	Middle frame	M3x5	9	
Media-card reader	Middle frame	M3x5	2	
Microphones (4)	Middle frame	M2x4	4	

Table 1. Screw list (continued)

Component	Secured to	Screw type	Quantity	Screw image
Middle frame	Display assembly	M3x5	11	
Power-button board	Middle frame	M2x3.5	2	
Side I/O-board	Middle frame	M3x5	2	
Side I/O-board bracket	Middle frame	M3x5	2	
Solid-state drive	System board	M2x3.5	1	
Speakers (2)	Middle frame	Washer-type M3x4	4	
Stand	I/O bracket	M4x6	6	
<p>i NOTE: The number and type of screws securing the stand to the computer is the same for both pedestal and articulating stand options.</p>				
System-board shield	System board	M3x5	5	
System board	Middle frame	M3x5	5	
Wireless card	System board	M2x3.5	1	

After working inside your computer

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

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

Technical overview

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

Topics:

- [Inside view of your computer](#)
- [System board components](#)

Inside view of your computer

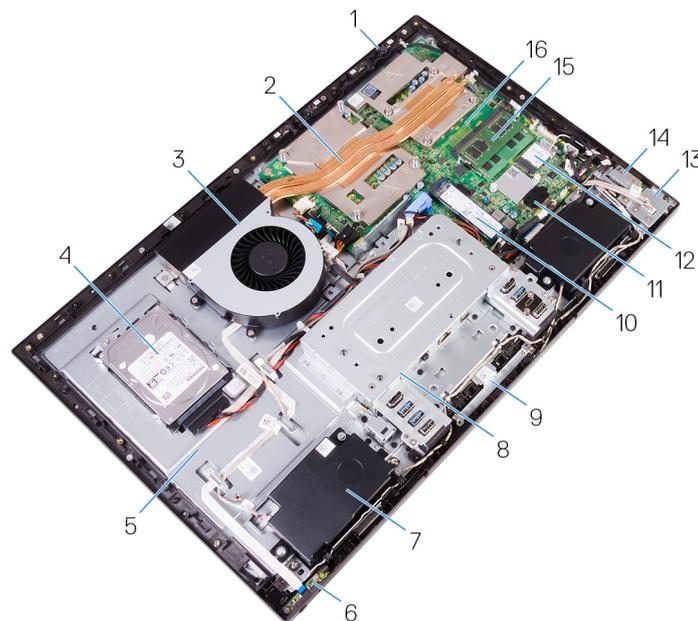
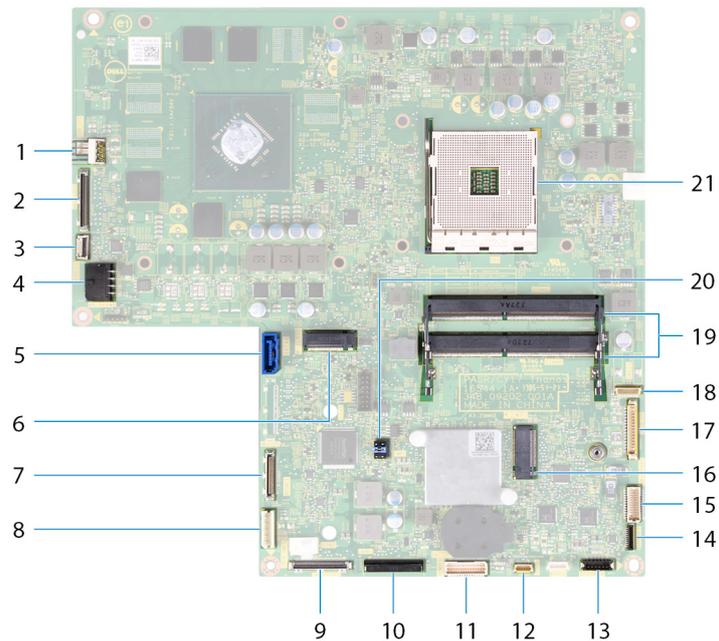


Figure 1. : Inside view of your computer

- | | |
|------------------------|------------------------|
| 1. Microphone | 2. Processor heat-sink |
| 3. Chassis fan | 4. Hard drive |
| 5. Middle frame | 6. Power-button board |
| 7. Speaker | 8. I/O bracket |
| 9. Camera assembly | 10. Solid-state drive |
| 11. Coin-cell assembly | 12. Wireless card |
| 13. Side I/O-board | 14. Media-card reader |
| 15. Memory module | 16. System board |

System board components



- | | |
|---|---|
| 1. fan-power cable (FAN_SYS) connector | 2. display-cable (MB-DISPC) connector |
| 3. power-button board cable (OSDC1) connector | 4. power-cable (MB-DCPWR) connector |
| 5. hard-drive data cable (SATA0) connector | 6. SSD-card connector (M.2) |
| 7. rear I/O-cable (RUSBC1) connector | 8. hard-drive power cable (SATA_PWR1) connector |
| 9. USB Type-C cable (MB-TYPEC1) connector | 10. rear I/O-board power cable (RPWRC1) connector |
| 11. rear I/O-board cable (LAUOC1) connector | 12. touch-screen cable (TOUCH1) connector |
| 13. speaker-cable (SPEAKER) connector | 14. media-card reader cable (SDRDC1) connector |
| 15. side I/O-board cable (MB-SUSBC) connector | 16. wireless-card slot |
| 17. camera-cable (WEBCAM) connector | 18. microphones-cable (DMIC1) connectors |
| 19. memory-modules (2) slots | 20. CMOS/Password jumper |
| 21. processor socket | |

Removing the back cover

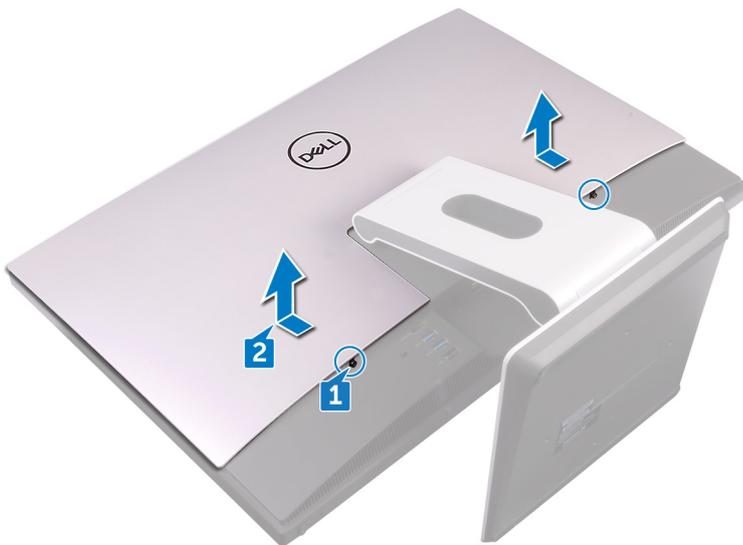
NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Topics:

- [Procedure](#)

Procedure

1. Loosen the two captive screws that secure the back cover to the inner frame.
2. Slide and lift the back cover off the inner frame.



Replacing the back cover

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Topics:

- [Procedure](#)

Procedure

1. Align the tabs on the back cover with the slots on the inner frame.
2. Slide the back cover towards the bottom of the computer and snap the back cover in place.
3. Tighten the captive screws that secure the back cover to the inner frame.

Removing the stand

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Topics:

- [Prerequisites](#)
- [Procedure](#)

Prerequisites

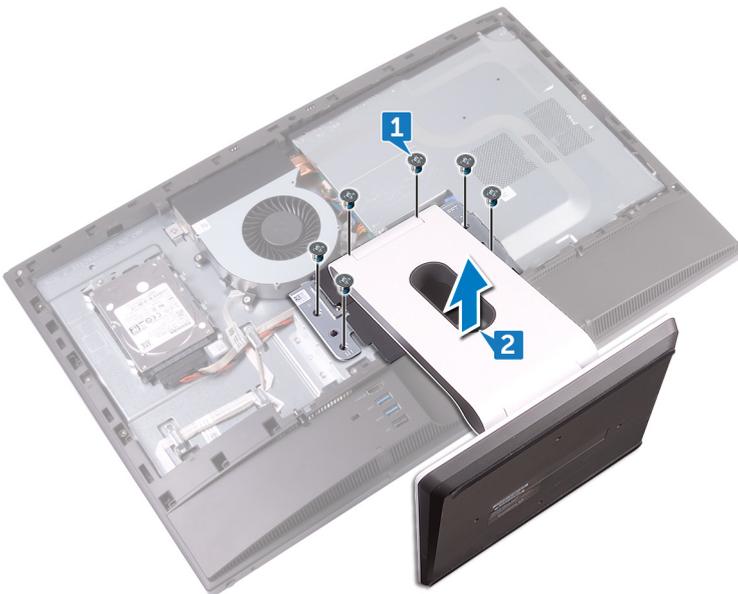
Remove the [back cover](#).

Procedure

NOTE: The removal and replacement process is the same for articulating and pedestal stands.

1. Remove the six screws (M4x6) that secure the stand to the middle frame.
2. Forcefully lift the stand off the I/O bracket. A snapping sound should be heard when the stand is removed correctly.

NOTE: Exercise caution when removing the stand so as to not damage the chassis fan.



Replacing the stand

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Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

NOTE: The following procedure applies for both articulating and pedestal stand options.

1. Place the tabs on the stand into the slots on the inner frame and snap them into place.
2. Align the screw holes on the stand with the screw holes on the middle frame.
3. Replace the six screws (M4x6) that secure the stand to the middle frame.

Post-requisites

Replace the [back cover](#).

Removing the hard drive

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

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

Topics:

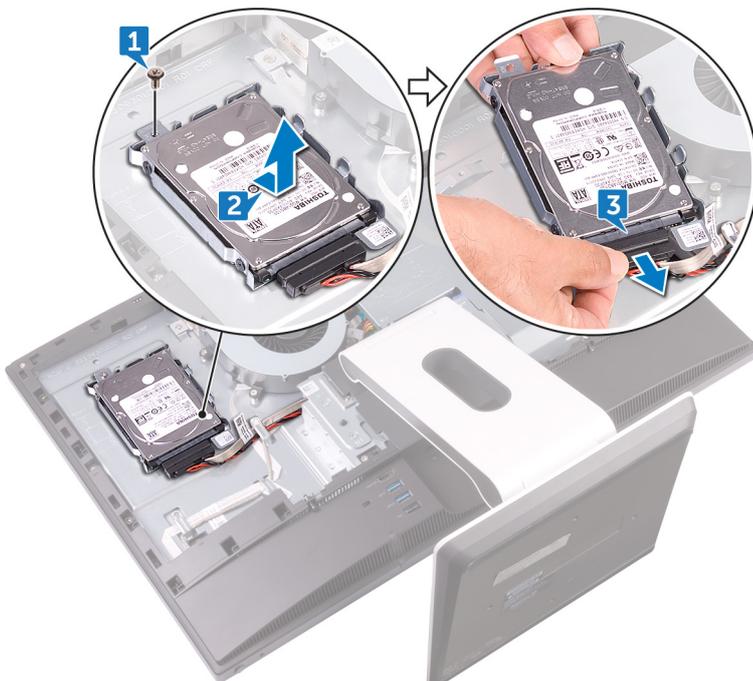
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [back cover](#).

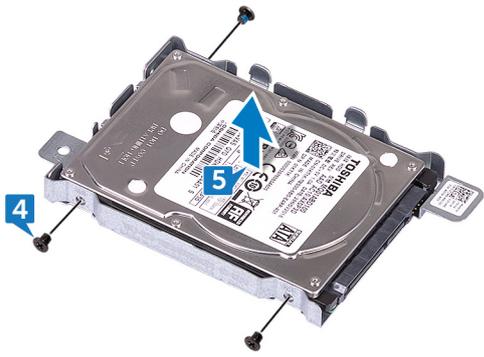
Procedure

1. Remove the screw (M3x5) that secures the hard-drive assembly to the middle frame.
2. Slide and lift the hard-drive assembly from the middle frame.
3. Disconnect the hard-drive data and power cable (SATA0 and SATA_PWR1) from the hard-drive assembly.



4. Remove the three screws (M3x3.5) that secure the hard drive to the hard-drive bracket.
5. Lift the hard drive off the hard-drive bracket.

i **NOTE:** Note the orientation of the hard drive so that you can replace it correctly.



Replacing the hard drive

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the screw holes on the disk drive with the screw holes on the disk-drive bracket.
2. Replace the three screws (M3x3.5) that screw the hard drive to the hard-drive bracket.
3. Connect the hard-drive data and power cable (SATA0 and SATA_PWR1) to the hard-drive assembly.
4. Place and slide the hard-drive assembly into the middle frame.
5. Replace the screw (M3x5) that secures the hard-drive assembly to the middle frame.

Post-requisites

Replace the [back cover](#).

Removing the inner frame

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Topics:

- [Prerequisites](#)
- [Procedure](#)

Prerequisites

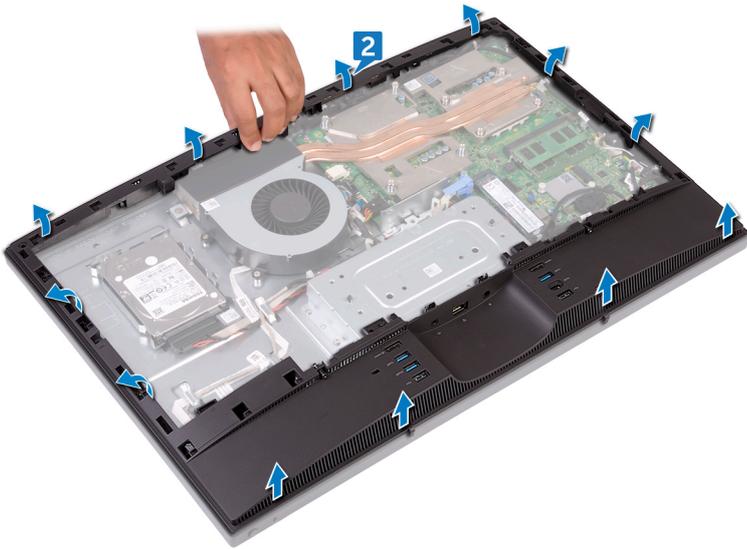
1. Remove the [back cover](#).
2. Remove the [stand](#).

Procedure

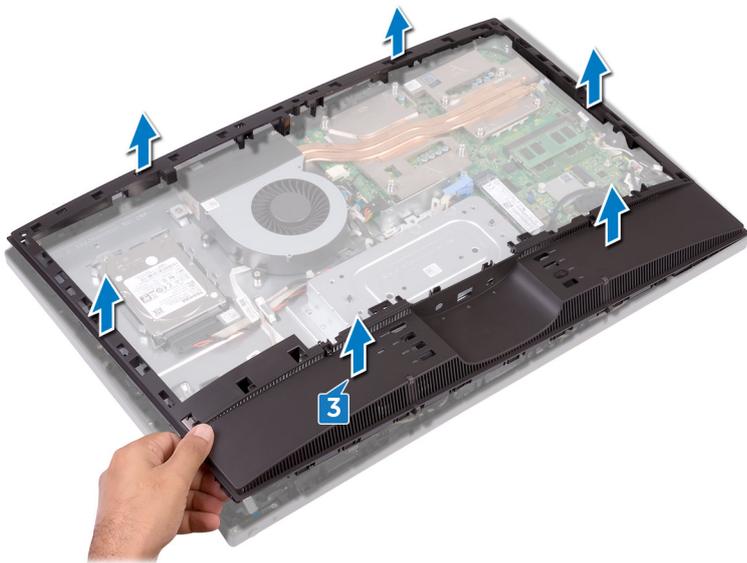
1. Remove the nine screws (M3x5) that secure the inner frame to the middle frame.



2. Gently pry the inner frame from the sides off the middle frame.



3. Lift the inner frame from the middle frame.



Replacing the inner frame

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Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Sliding the inner frame at an angle, align the audio-out port through the respective slot on the inner frame and the screw holes on the inner frame with the screw holes on the middle frame.
2. Starting from the edge closest to the I/O bracket, press the inner frame down until it clicks in place.
3. Replace the nine screws (M3x5) that secure the inner frame to the middle frame.

Post-requisites

1. Replace the [stand](#).
2. Replace the [back cover](#).

Removing the camera

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

Topics:

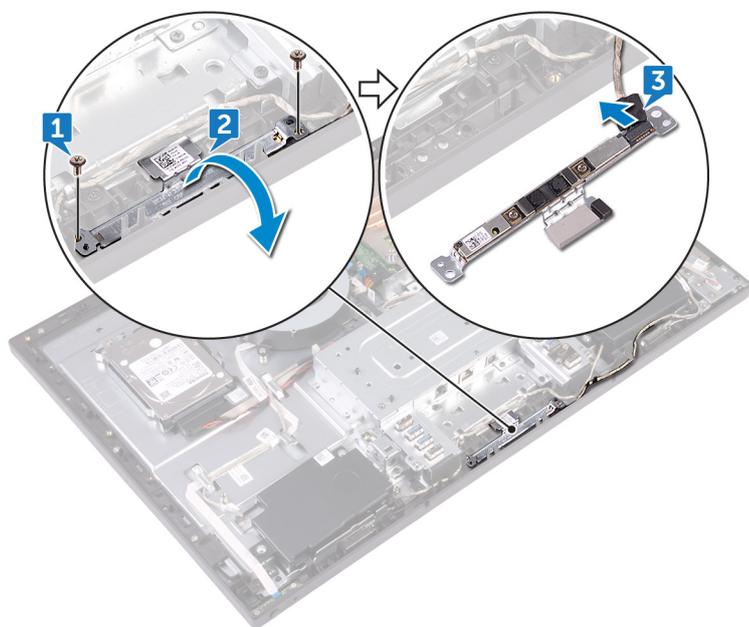
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).

Procedure

1. Remove the two screws (M3x5) that secure the camera assembly to the middle frame.
2. Lift the camera assembly off the middle frame.
3. Disconnect the camera cable (WEBCAM) from the camera assembly.



Replacing the camera

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Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Connect the camera cable (WEBCAM) to the camera assembly.
2. Turn the camera assembly and align the screw holes on the camera assembly with the screw holes on the middle frame.
3. Replace the two screws (M3x5) that secure camera assembly to the middle frame.

Post-requisites

1. Replace the [inner frame](#).
2. Replace the [stand](#).
3. Replace the [back cover](#).

Removing the microphones

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Topics:

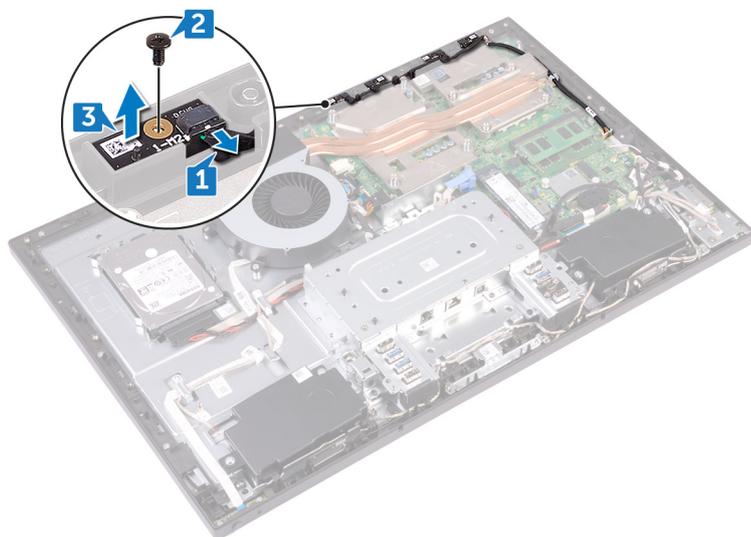
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).

Procedure

1. Disconnect the microphones cable (DMIC1) from the microphone modules (4).
2. Remove the four screws (M2x4) that secure the microphone modules (4) to the middle frame.
3. Using a plastic scribe, carefully pry and lift the microphone modules (4) off the slots on the middle frame.



Replacing the microphones

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Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Connect the microphones cable (DMIC1) to the microphone modules.
2. Align the microphone modules (4) with their slots on the middle frame.
3. Route the microphones cable (DMIC1) through the routing guides on middle frame.
4. Replace the four screws (M2x4) that secure the microphone module to the middle frame.

Post-requisites

1. Replace the [inner frame](#).
2. Replace the [stand](#).
3. Replace the [back cover](#).

Removing the power-button board

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Topics:

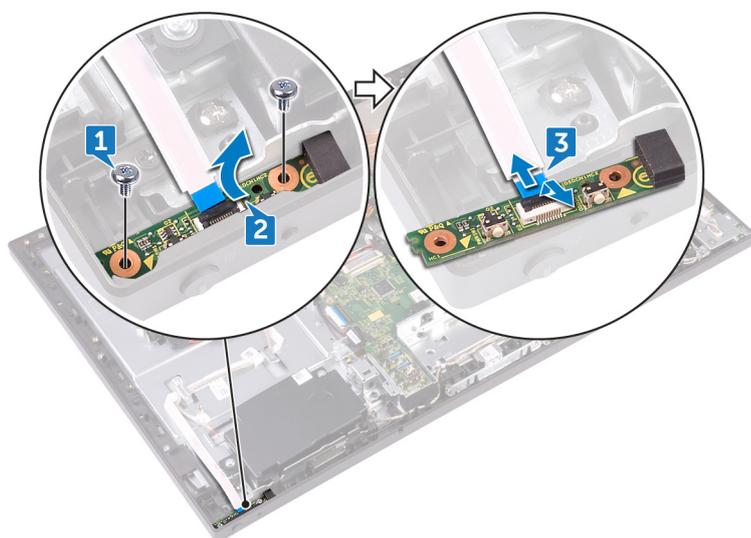
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).

Procedure

1. Remove the two screws (M2x3.5) that secure the power-button board shield to the middle frame.
2. Slide and lift the power-button board off the middle frame.
3. Open the latch, disconnecting the power-button board cable (0SDC1) from its slot on the power-button board. Then, remove the power-button board cable (0SDC1) from the routing guide on the middle frame.



Replacing the power-button board

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Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Connect the power-button board cable (OSDC1) to the power-button board and route the cable through the routing guide on the middle frame.
2. Align the power-button board to the slot on the middle frame and place the power-button board on the middle frame.
3. Align the screw holes on power-button board shield to the screw holes on middle frame.
4. Replace the two screws (M2x3.5) that secure the power-button board shield to middle frame.

Post-requisites

1. Replace the [inner frame](#).
2. Replace the [stand](#).
3. Replace the [back cover](#).

Removing the front bezel

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Topics:

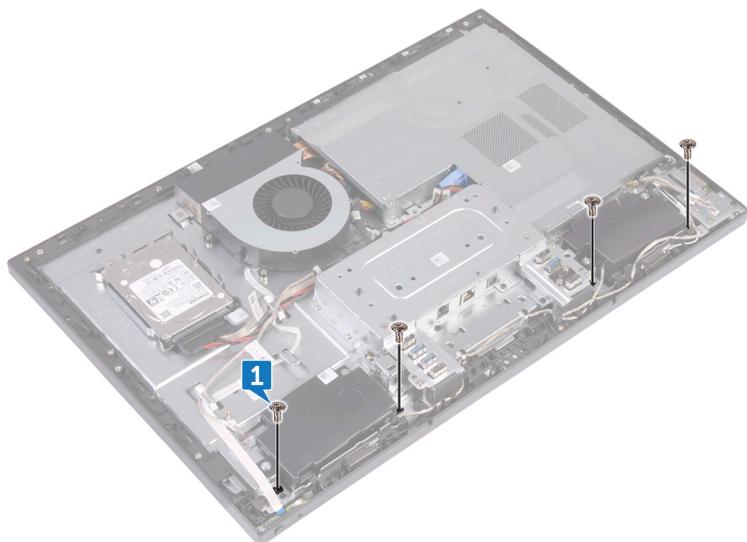
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

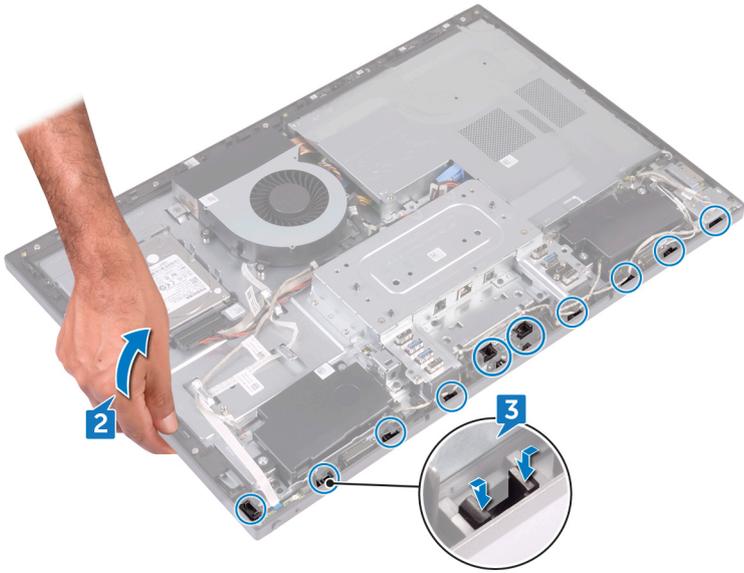
1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).
4. Remove the [camera](#).

Procedure

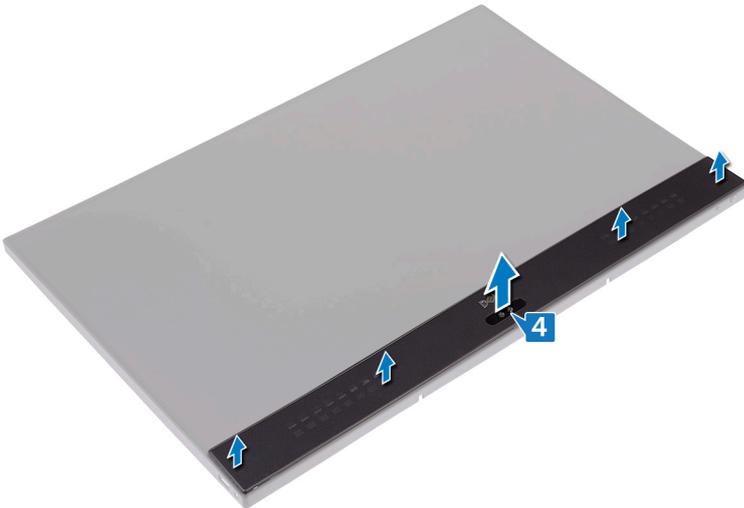
1. Remove the four screws (Step-type M3x5.6) that secure the front bezel to the middle frame.



2. Lift and hold in place the system at an angle.
3. Release the ten latches securing the front bezel to the display assembly.



4. Gently lift the front bezel off the display assembly.



Replacing the front bezel

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Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Aligning the latches on the front bezel to the slots on the middle frame, snap the front bezel back in place.
2. Replace the four screws (Step-type M3x5.6) that secure the front bezel to the middle frame

Post-requisites

1. Replace the [camera](#).
2. Replace the [inner frame](#).
3. Replace the [stand](#).
4. Replace the [back cover](#).

Removing the system-board shield

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

Topics:

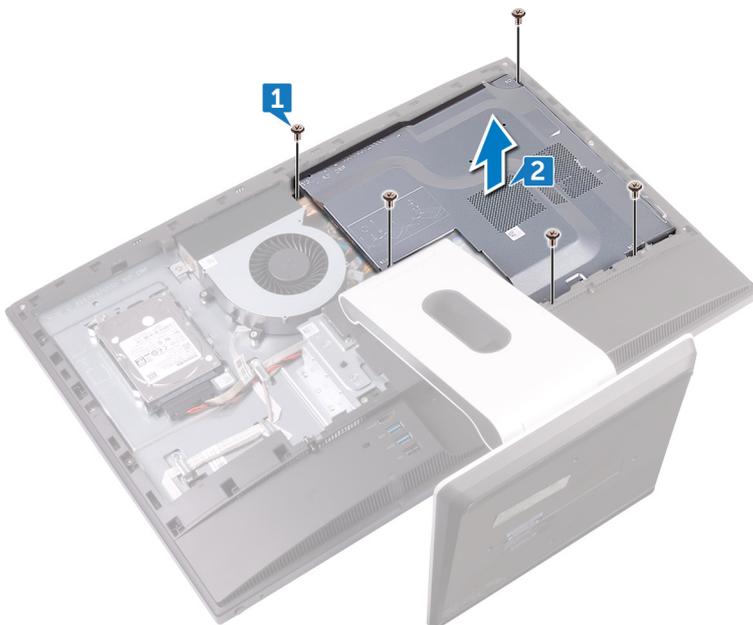
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [back cover](#).

Procedure

1. Remove the five screws (M3x5) that secure the system-board shield to the middle frame.
2. Lift the system-board shield off the middle frame.



Replacing the system-board shield

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the screw holes on the system-board shield with the screw holes on the middle frame.
2. Replace the five screws (M3x5) that secure the system-board shield to the middle frame.

Post-requisites

Replace the [back cover](#).

Removing the chassis fan

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

Topics:

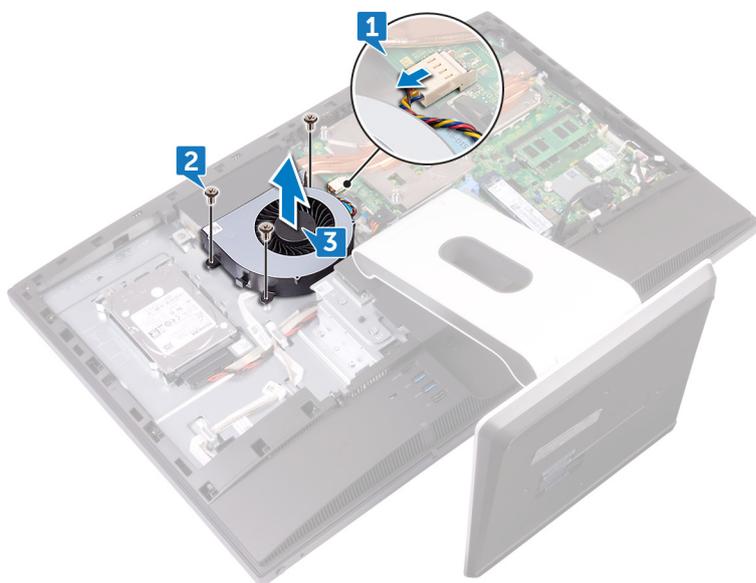
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

1. Disconnect the fan-power cable (FAN_SYS) from its connector on the system board.
2. Remove the three screws (M3x5) that secure the chassis fan to the middle frame.
3. Lift the chassis fan off the middle frame.



Replacing the chassis fan

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the screw holes on the chassis fan with the screw holes on the middle frame.
2. Replace the three screws (M3x5) that secure the chassis fan to the middle frame.
3. Connect the fan-power cable to the system board.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Removing the speakers

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

Topics:

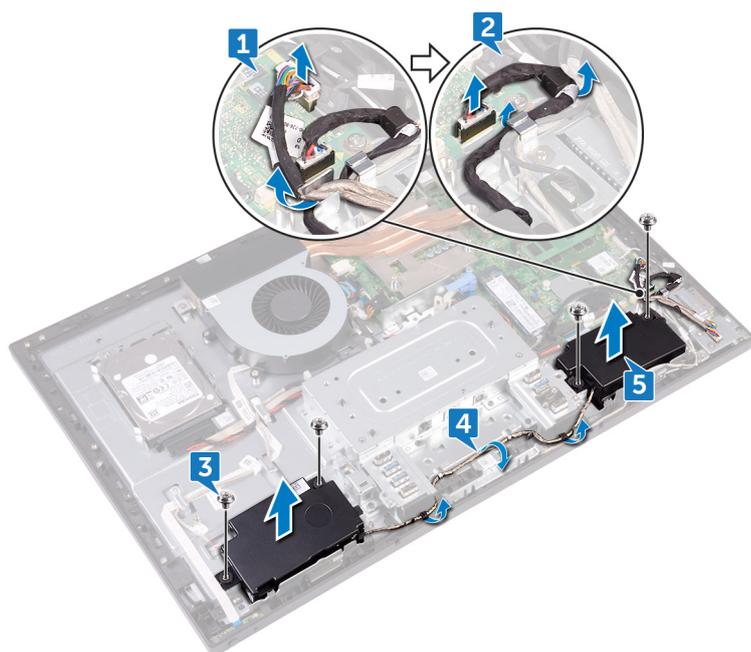
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).
4. Remove the [system-board shield](#).

Procedure

1. Disconnect the side I/O-board cable (MB-SUSBC) from the system board and remove it from the routing guide on the middle frame.
2. Disconnect the speaker cable (SPEAKER) from the system board and remove it from the routing guide on the middle frame.
3. Remove the four screws (Washer-type M3x4) that secure the speakers to the middle frame.
4. Remove the speaker cable (SPEAKER) from the routing guide on the I/O bracket.
5. Lift the speakers along with the cable off the middle frame.



Replacing the speakers

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the screw holes on the speakers to the screw holes on the middle frame.
2. Route the speaker (SPEAKER) cable through the routing guide on the I/O bracket.
3. Replace the four screws (Washer-type M3x4) that secure the speakers to the middle frame.
4. Reconnect the speaker cable (SPEAKER) from the system board and route the cable through the routing guide on the middle frame.
5. Reconnect the side I/O-board cable (MB-SUSBC) from the system board and route the cable through the routing guide on the middle frame.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [inner frame](#).
3. Replace the [stand](#).
4. Replace the [back cover](#).

Removing the side I/O-board

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

Topics:

- [Prerequisites](#)
- [Procedure](#)

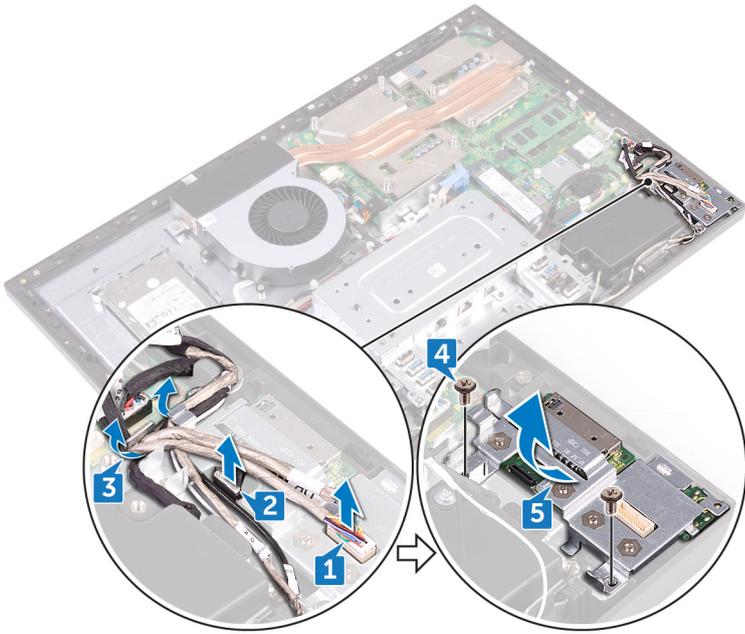
Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).
4. Remove the [system-board shield](#).

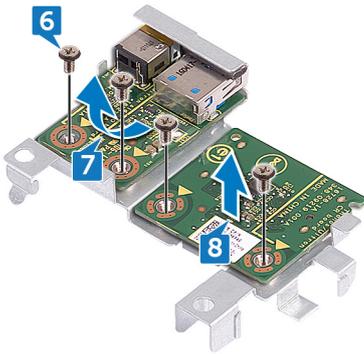
Procedure

Before conducting the following removal procedure, disconnect and remove from the respective routing the following cables:

- Antenna cables from the wireless-card.
 - Speaker cable (SPEAKER) from the system board.
 - Camera cable (WEBCAM) from the system board.
1. Disconnect the side I/O-board cable (MB-SUSBC) from the side I/O-board.
 2. Disconnect the media-card reader cable (SDRDC1) from the media-card reader board.
 3. Release the side I/O-board and media-card reader cables (MB-SUSBC and SDRDC1) from the routing guides on the middle frame.
 4. Remove the two screws (M3x5) that secure the side I/O-bracket to the middle frame.
 5. Lift the side I/O-bracket from the middle frame.



6. Remove the four screws (M3x5) that secure the side I/O-board and the media-card reader board to the side I/O-bracket.
7. Slide and lift the side I/O-board from the side I/O-bracket.
8. Lift the media-card reader board from the side I/O-bracket.



Replacing the side I/O-board

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

After conducting the following replacement procedure, and if the following cables were disconnected and removed in the removal process reconnect and route through the respective routing guides the following cables:

- Antenna cables from the wireless-card.
 - Speaker cable (SPEAKER) to the system board.
 - Camera cable (WEBCAM) to the system board.
1. Replace the media-card reader board and the side I/O-board aligning the screw holes with the screw holes on the side I/O-bracket.
 2. Replace the four screws (M3x5) that secure the side I/O-board and the media-card reader board to the side I/O-bracket.
 3. Replace the side I/O-bracket aligning the guiding pins and screw holes to the respective slots and screw holes on the middle frame.
 4. Replace the two screws (M3x5) that secure the side I/O-bracket to the middle frame.
 5. Route the side I/O-board and media-card reader cables (MB-SUSBC and SDRDC1) through the routing guides on middle frame.
 6. Connect the side I/O-board cable (MB-SUSBC) to the side I/O-board
 7. Connect the media-card reader cable (SDRDC1) to the media-card reader board.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [inner frame](#).
3. Replace the [stand](#).
4. Replace the [back cover](#).

Removing the coin-cell battery

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

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

Topics:

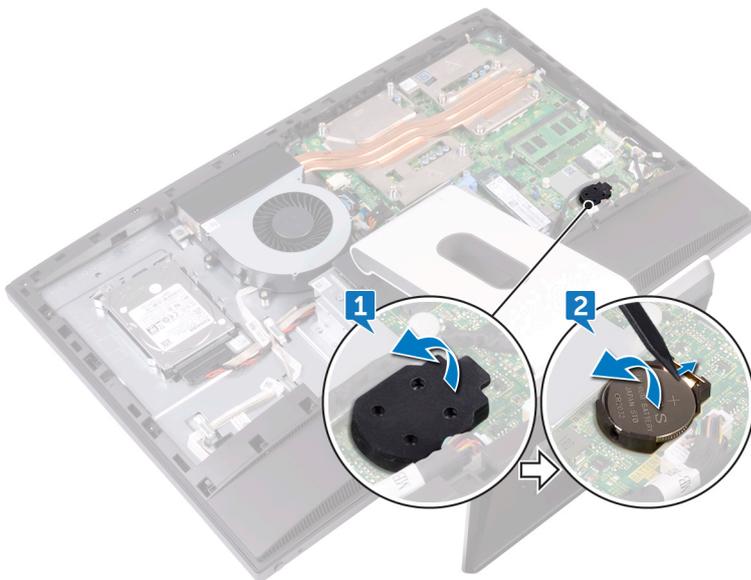
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

1. Pull the coin-cell rubber cap from the system board.
2. Using a plastic scribe, press on the metal clip. Then carefully pry and lift off the coin-cell battery from the coin-cell holder on the system board.



Replacing the coin-cell battery

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. With the positive-side facing up, insert the coin-cell battery into the battery socket on the system board and press down the battery into place.
2. Adhere the coin-cell rubber cap onto the positive-side of the coin cell battery.

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Removing the memory modules

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

Topics:

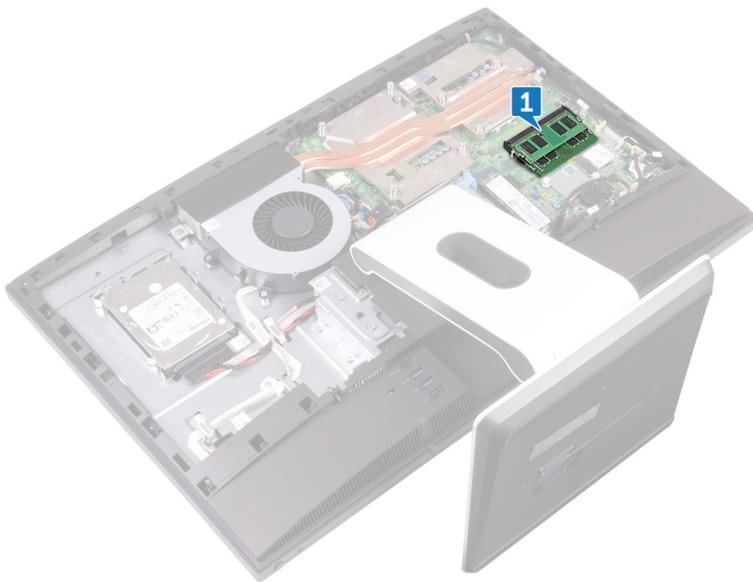
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

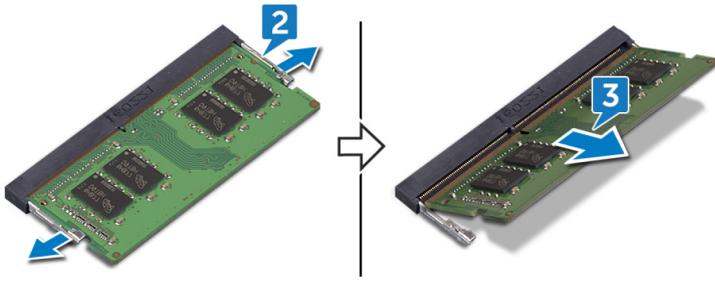
1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

1. Locate the memory modules on the system board.



2. Using your fingertips, spread apart the securing clips at each end of the memory-module slot until the memory module pops up.
3. Slide and remove the memory module from the memory-module slot.



Replacing the memory modules

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

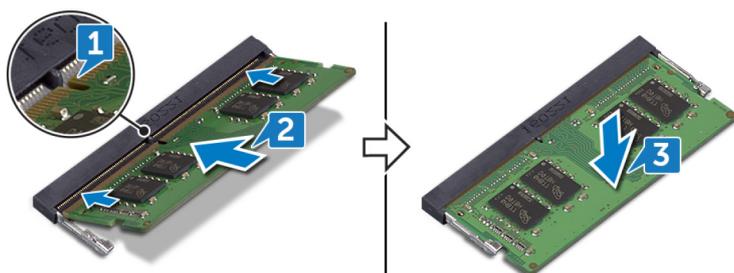
Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

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

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



Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Removing the solid-state drive

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

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

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

Topics:

- [Prerequisites](#)
- [Procedure](#)

Prerequisites

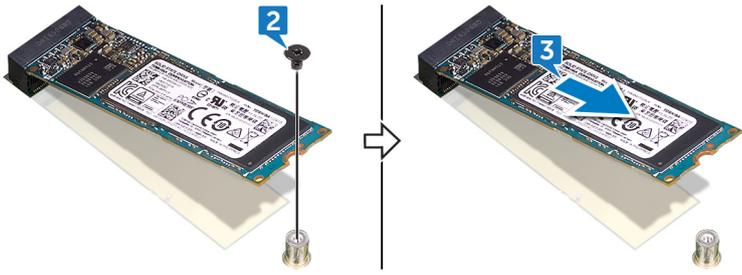
1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

1. Locate the solid-state drive on the system board.



2. Remove the screw (M2x3.5) that secures the solid-state drive to the system board.
3. Slide and remove the solid-state drive from the solid-state drive slot.



Replacing the solid-state drive

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

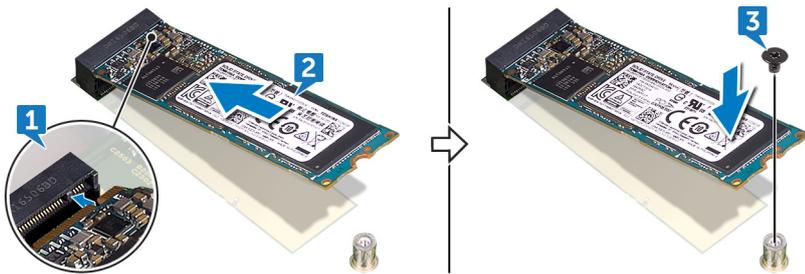
CAUTION: Solid-state drives are fragile. Exercise care when handling the solid-state drive.

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the notch on the solid-state drive with the tab on the solid-state drive slot.
2. Slide the solid-state drive into the solid-state drive slot.
3. Replace the screw (M2x3.5) that secures the solid-state drive to the system board.



Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Removing the wireless card

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

Topics:

- [Prerequisites](#)
- [Procedure](#)

Prerequisites

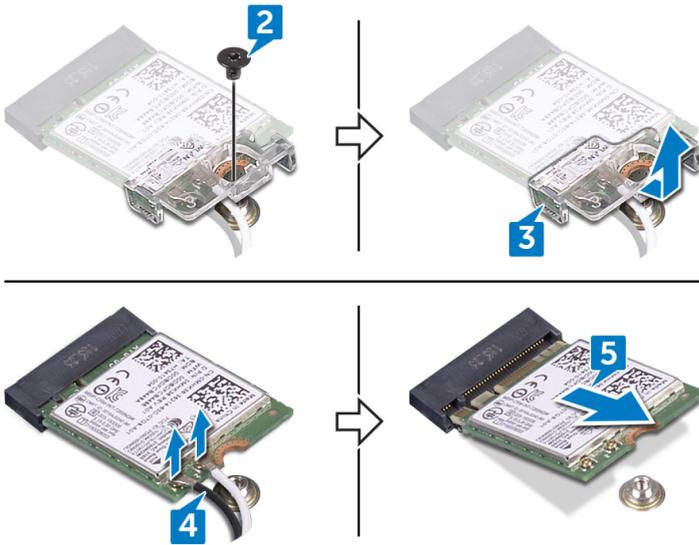
1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

1. Locate the wireless card on the system board.



2. Remove the screw (M2x3.5) that secures the wireless card to the system board.
3. Lift the wireless-card shield off the system board.
4. Disconnect the antenna cables from the wireless card.
5. Slide and remove the wireless card out of the wireless-card slot.



Replacing the wireless card

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

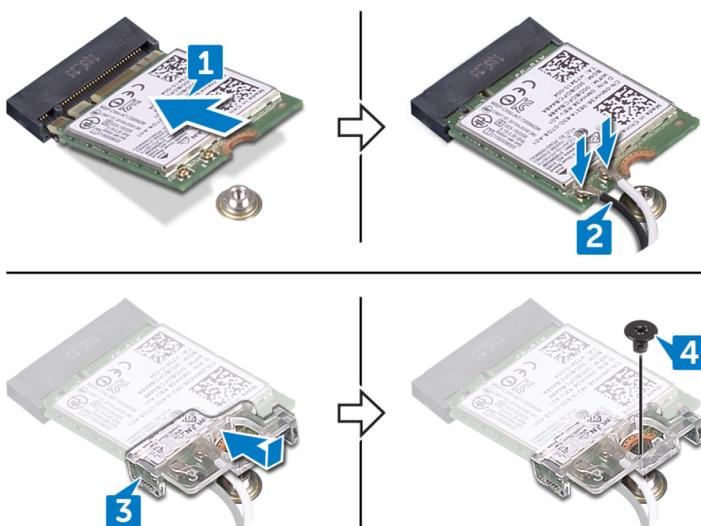
CAUTION: To avoid damaging the wireless card, do not place any cables under it.

1. Align the notch on the wireless card with the tab on the wireless-card slot and slide the wireless card into the wireless-card slot.
2. Connect the antenna cables to the wireless card.
The following table provides the antenna-cable color scheme for the wireless card supported by your computer:

Table 2. : Wirelesscard colour scheme

Connectors on the wireless card	Antenna-cable color
Main (white triangle)	White
Auxiliary (black triangle)	Black

3. Press down the other end of the wireless card and align the screw hole on the wireless-card shield and wireless card with the screw hole on the system board.
4. Replace the screw (M2x3.5) that secures the wireless-card bracket and the wireless card to the system board.



Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Removing the processor heat-sink

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

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

Topics:

- [Prerequisites](#)
- [Procedure for computers with discrete graphics](#)

Prerequisites

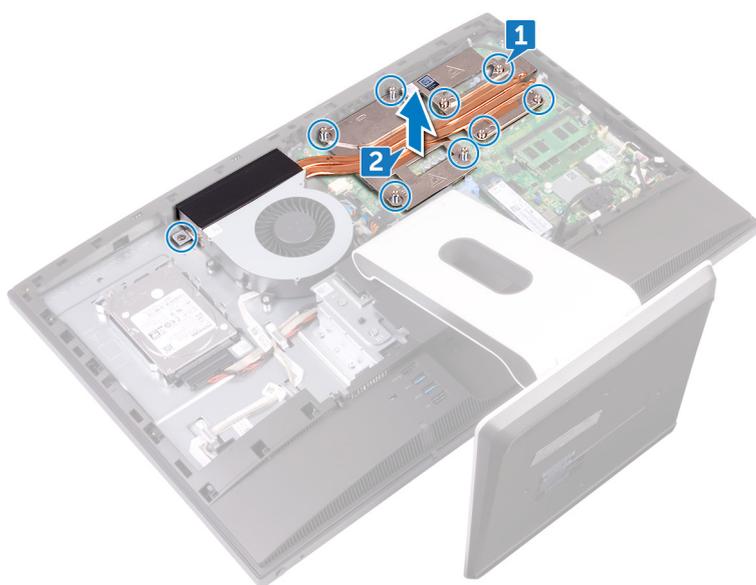
1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure for computers with discrete graphics

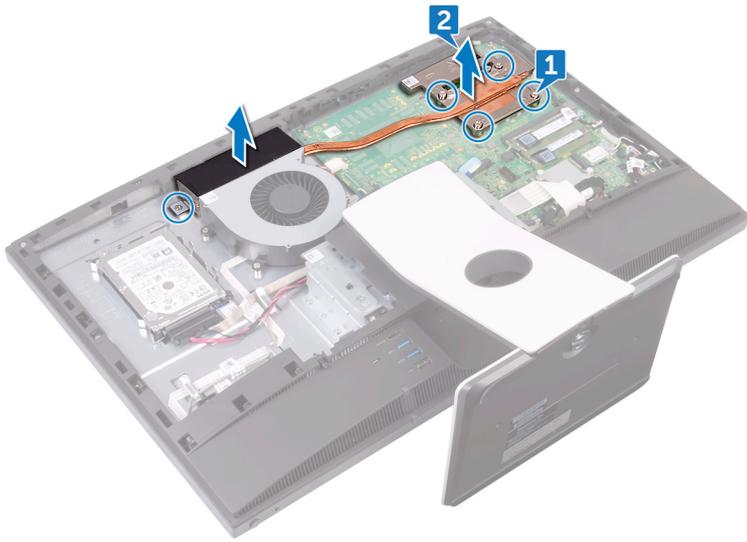
NOTE: Depending on the configuration you ordered, the appearance of the processor heat-sink and the number of screws may differ.

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

NOTE: Computers that support the AMD Radeon RX560 graphics configuration are shipped with 9 captive screws.



NOTE: Computers that ship with only integrated graphics processors are shipped with 5 captive screws.



Replacing the processor heat-sink

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

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

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

Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Removing the processor

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

Topics:

- [Prerequisites](#)
- [Procedure](#)

Prerequisites

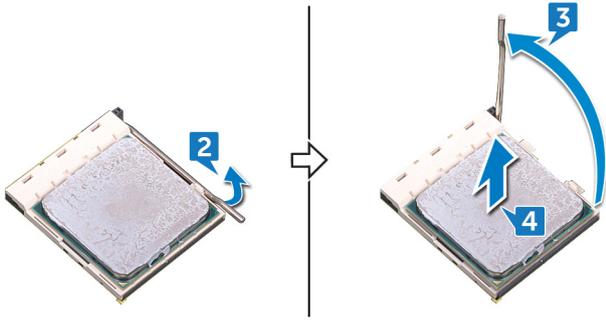
1. Remove the [back cover](#).
2. Remove the [system-board shield](#).
3. Remove the [processor heat sink](#).

Procedure

1. Locate the processor on the system board.



2. Press the release-lever down and then pull it outwards to release it from the securing tab.
3. Pull up the release-lever completely to unlock the processor.
4. Gently lift the processor and remove it from the processor socket.



Replacing the processor

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

CAUTION: If either the processor or the heat sink is replaced, use the thermal grease provided in the kit to ensure that thermal conductivity is achieved.

NOTE: A new processor ships with a thermal pad in the package. In some cases, the processor may ship with the thermal pad attached to it.

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Ensure that the release lever on the processor socket is fully extended in the open position.

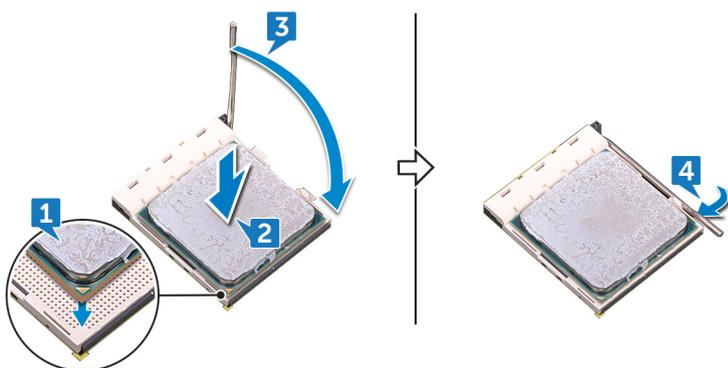
CAUTION: The pin-1 corner of the processor has a triangle that aligns with the triangle on the pin-1 corner on the processor socket. When the processor is properly seated, all four corners are aligned at the same height. If one or more corners of the processor are higher than the others, the processor is not seated properly.

2. Align the notches on the processor with the tabs on the processor socket and place the processor in the processor socket.

CAUTION: Ensure that the processor-cover notch is positioned underneath the alignment post.

3. When the processor is fully seated in the socket, close the processor cover.

4. Pivot the release-lever down and place it under the tab on the processor cover.



Post-requisites

1. Replace the [processor heat sink](#).
2. Replace the [system-board shield](#).
3. Replace the [back cover](#).

Removing the I/O bracket

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

Topics:

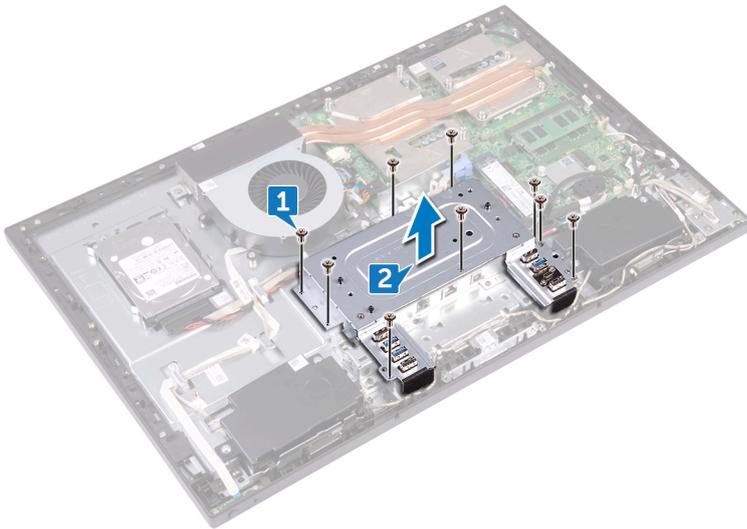
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).

Procedure

1. Remove the nine screws (M3x5) that secure the I/O bracket to the middle frame.
2. Lift the I/O bracket off the middle frame.



Replacing the I/O bracket

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the screw holes on the I/O bracket with the screw holes on the middle frame.
2. Replace the nine screws (M3x5) that secure the I/O bracket to the middle frame.

Post-requisites

1. Replace the [inner frame](#).
2. Replace the [stand](#).
3. Replace the [back cover](#).

Removing the I/O board

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

Topics:

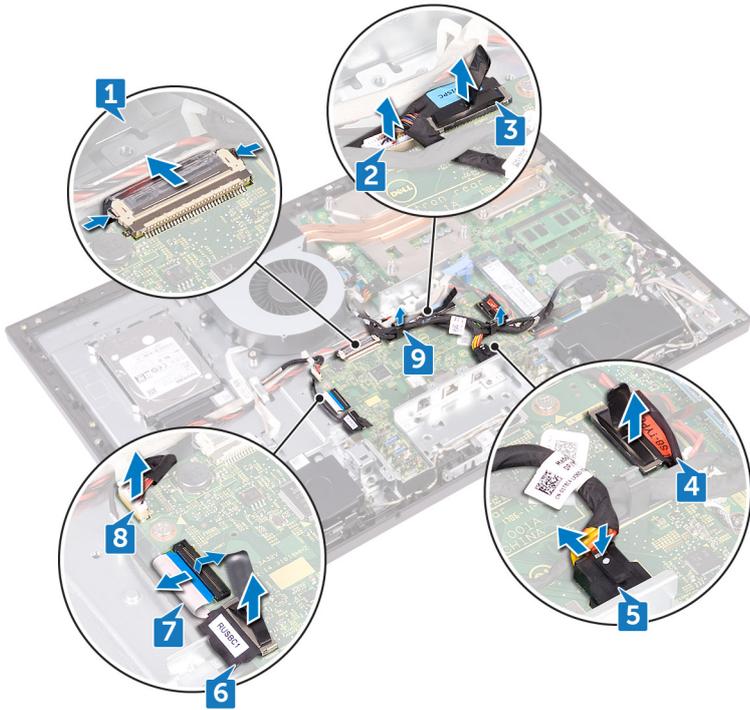
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).
4. Remove the [I/O board bracket](#).

Procedure

1. Open the latch and disconnect the display-panel cable (EDPCN1) from the I/O board.
2. Disconnect the rear I/O-board power cable (RPWRC1) from the I/O board.
3. Using the pull tab, disconnect the display cable (SB-DISPC) from the I/O board.
4. Using the pull tab, disconnect the USB Type-C cable (SB-TYPEC1) from the I/O board.
5. Press down the latch on the power-cable connector and pull the connector to disconnect the power cable (SB-DCPWR) from the I/O board.
6. Using the pull tab, disconnect the rear I/O cable (RUSBC1) from the I/O board.
7. Open the latch and disconnect the rear I/O-board cable (LAUOC1) from the I/O board.
8. Disconnect the display-converter cable (CONVERTER) from the I/O board.
9. Remove the cables from the routing guide on the I/O board.



10. Remove the four screws (M3x5) that secure the I/O board to the middle frame.
11. Lift the I/O board off the middle frame.



Replacing the I/O board

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Align the screw holes on the I/O board with the screw holes on the middle frame.
2. Replace the four screws (M3x5) that secure the I/O board to the middle frame.
3. Route and connect the following cables through the respective routing guides and connectors on the I/O board:
 - Display-converter cable (CONVERTER)
 - Rear I/O-board cable (LAUOC1)
 - Rear I/O cable (RUSBC1)
 - Power cable (SB-DCPWR)
 - USB Type-C cable (SB-TYPEC1)
 - Display cable (SB-DISPC)
 - Rear I/O-board power cable (RPWRC1)
 - Display-panel cable (EDPCN1)

Post-requisites

1. Replace the [I/O bracket](#).
2. Replace the [inner frame](#).
3. Replace the [stand](#).
4. Replace the [back cover](#).

Removing the system board

- NOTE:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.
- NOTE:** Your computer's Service Tag is stored in the system board. You must enter the Service Tag in the BIOS setup program after you replace the system board.
- NOTE:** Replacing the system board removes any changes you have made to the BIOS using the BIOS setup program. You must make the appropriate changes again after you replace the system board.
- NOTE:** Before disconnecting the cables from the system board, note the location of the connectors so that you can reconnect the cables correctly after you replace the system board.

Topics:

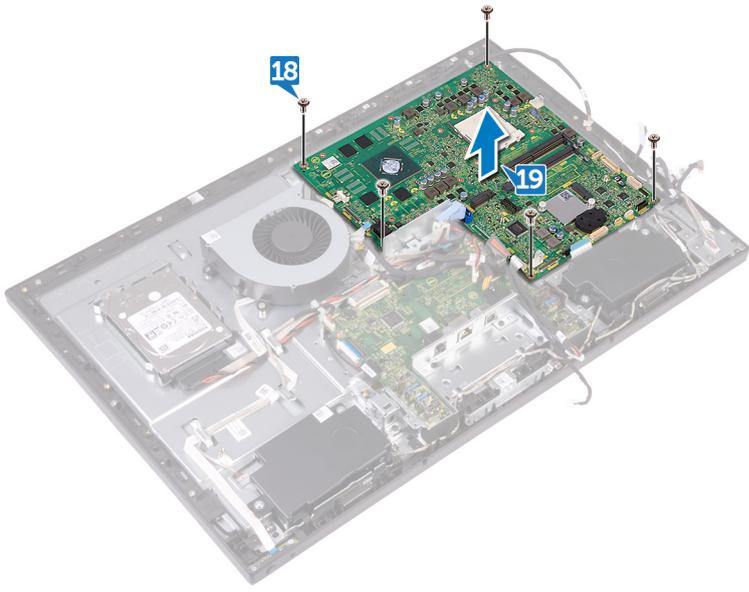
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [system-board shield](#).
3. Remove the [memory modules](#).
4. Remove the [solid-state drive](#).
5. Remove the [wireless card](#).
6. Remove the [processor heat sink](#).
7. Remove the [processor](#).

Procedure

- NOTE:** To avoid any potential damage to the cables, ensure to release them from the routing guides.
 - NOTE:** Note the routing of each cable as you remove them and the order of removal so that you can reroute it correctly during the replacement of the system board.
1. Disconnect the microphones cable (DMIC1) from the system board.
 2. Disconnect the camera cable (WEBCAM) from the system board.
 3. Disconnect the side I/O-board cable (MB-SUSBC) from the system board.
 4. Disconnect the media-card reader cable (SDRDC1) from the system board.
 5. Disconnect the speaker cable (SPEAKER) from the system board.
 6. Disconnect the touch-screen cable (TOUCH1) from the system board. This step is applicable only for touch screen systems.
 7. Disconnect the rear I/O-board power cable (RPWRC1) from the system board.
 8. Open the latch and disconnect the rear I/O-board cable (LAUOC1) from the system board.
 9. Using the pull tab, disconnect the USB Type-C cable (MB-TYPEC1) from the system board.
 10. Using the pull tab, disconnect the rear I/O cable (RUSBC1) from the system board.
 11. Disconnect the hard-drive power cable (SATA_PWR1) from the system board.



Replacing the system board

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

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

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

Topics:

- [Procedure](#)
- [Post-requisites](#)

Procedure

NOTE: The system board is shipped with the coin-cell battery.

1. Align the screw holes on the system board with the screw holes on the middle frame.
2. Replace the five screws (M3x5) that secure the system board to the middle frame.
3. Route and connect the following cables through the respective routing guides and connectors on the system board:
 - Fan-power cable (FAN_SYS)
 - Display cable (MB-DISPC)
 - Power-button board cable (OSDC1)
 - Power cable (MB-DCPWR)
 - Hard-drive data cable (SATA0)
 - Hard-drive power cable (SATA_PWR1)
 - Rear I/O cable (RUSBC1)
 - USB Type-C cable (MB-TYPEC1)
 - Rear I/O-board cable (LAUOC1)
 - Rear I/O-board power cable (RPWRC1)
 - Touch-screen cable (TOUCH1)
 - Speaker cable (SPEAKER)
 - Media-card reader cable (SDRDC1)
 - Side I/O-board cable (MB-SUSBC)
 - Camera cable (WEBCAM)
 - Microphones cable (DMIC1)

Post-requisites

1. Replace the [processor](#).
2. Replace the [processor heat-sink](#).
3. Replace the [wireless card](#).
4. Replace the [solid-state drive](#).
5. Replace the [memory modules](#).

6. Replace the [system-board shield](#).
7. Replace the [back cover](#).

Removing the middle frame

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

Topics:

- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [hard drive](#).
4. Remove the [inner frame](#).
5. Remove the [camera](#).
6. Remove the [microphones](#).
7. Remove the [power-button board](#).
8. Remove the [front bezel](#).
9. Remove the [system-board shield](#).
10. Remove the [chassis fan](#).
11. Remove the [speakers](#).
12. Remove the [side I/O-board](#).
13. Remove the [wireless card](#).
14. Remove the [processor heat sink](#).
15. Remove the [I/O bracket](#).
16. Remove the [I/O board](#).
17. Remove the [system board](#).

Procedure

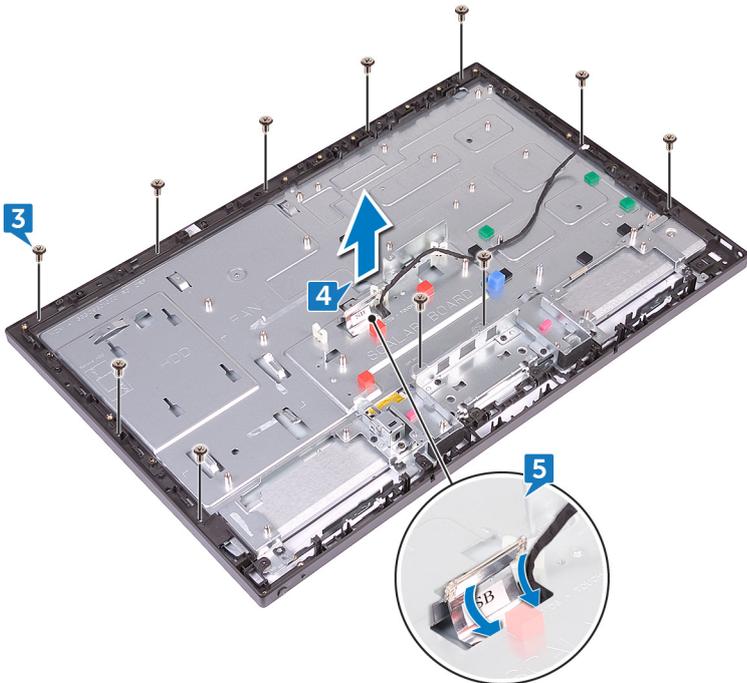
NOTE: Depending on the configuration you ordered, the appearance of the middle frame may differ.

1. Press the tabs on the display-converter cable (CONVERTER) and disconnect the cable from the display assembly through its slot on the middle frame.
2. Remove all of the cables from the routing guides on the middle frame.

NOTE: Note the routing of each cable as you remove them and the order of removal so that you can reroute it correctly during the replacement of the middle frame.



3. Remove the 11 screws (M3x5) that secure the middle frame to the display assembly.
4. Lift the middle frame off the display assembly.
5. Push the touch-screen cable (TOUCH1) and the display-panel cable (EDPCN1) through the slot on the middle frame.



Replacing the middle frame

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

Topics:

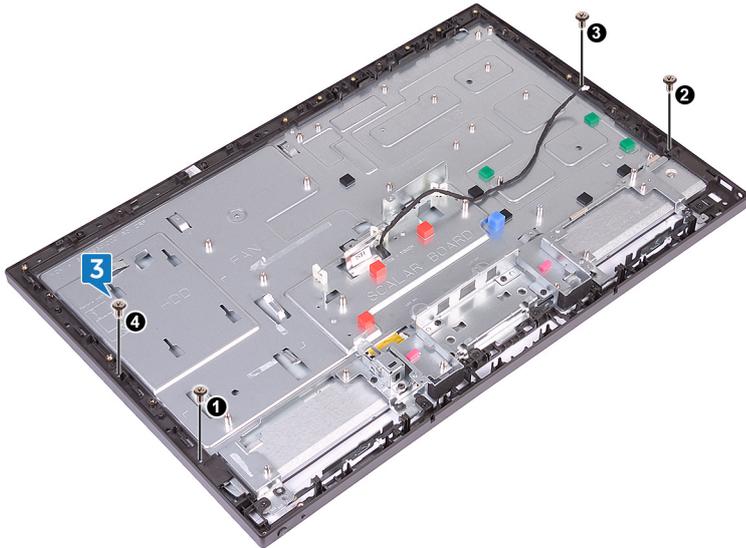
- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Push the touch-screen cable (TOUCH1) and the display-panel cable (EDPCN1) through the slot on the middle frame.
2. Aligning the display assembly to the slot on the middle frame slide the display assembly into the slot on the middle frame.



3. In sequential order replace the four screws (M3x5) that secure the middle frame to the display assembly.



4. Replace the seven remaining screws (M3x5) that secure the middle frame to the display assembly.



5. Route all the cables through the routing guides on the middle frame.
6. Connect the display-converter cable (CONVERTER) to the display assembly through its slot on the middle frame.

Post-requisites

1. Replace the [system board](#).
2. Replace the [I/O board](#).
3. Replace the [I/O bracket](#).
4. Replace the [processor heat-sink](#).
5. Replace the [wireless card](#).
6. Replace the [side I/O-board](#).
7. Replace the [speakers](#).
8. Replace the [chassis fan](#).
9. Replace the [system-board shield](#).
10. Replace the [front bezel](#).

11. Replace the [power-button board](#).
12. Replace the [microphones](#).
13. Replace the [camera](#).
14. Replace the [inner frame](#).
15. Replace the [hard drive](#).
16. Replace the [stand](#).
17. Replace the [back cover](#).

Removing the display assembly

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

Topics:

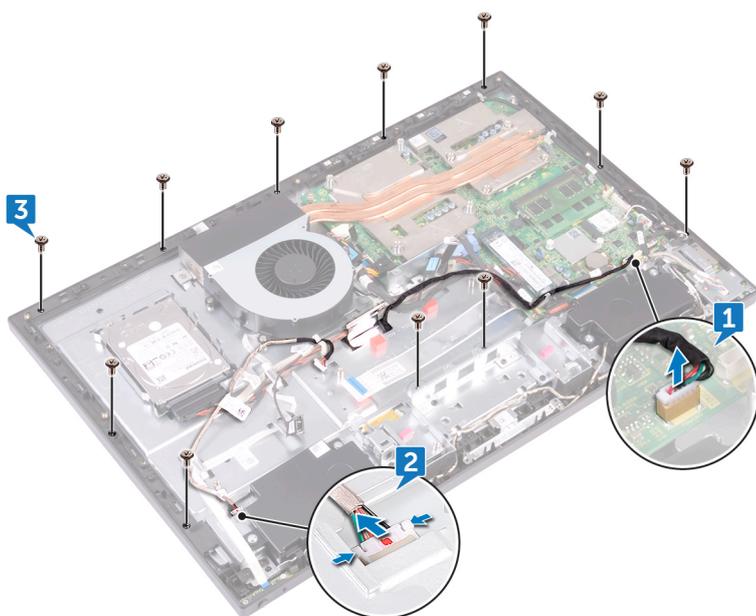
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

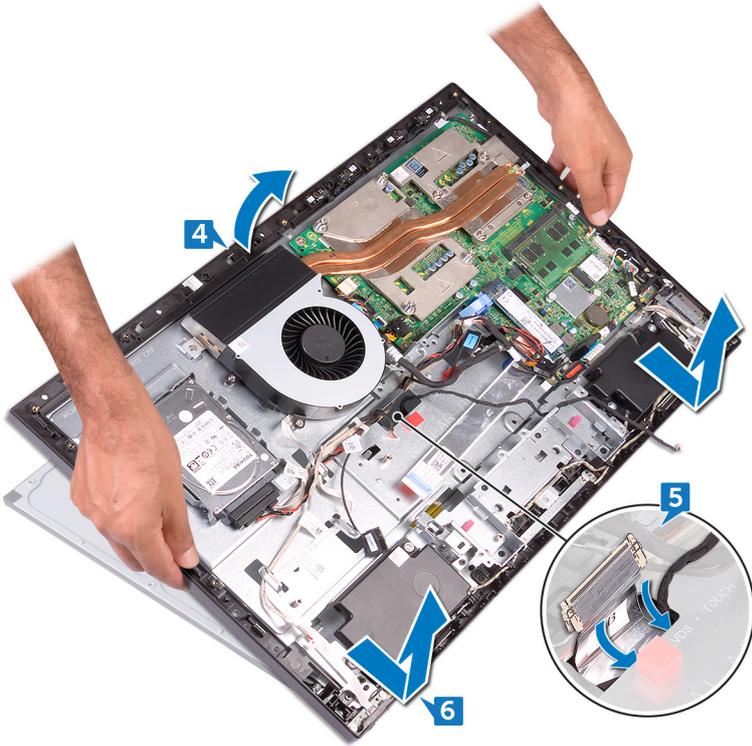
1. Remove the [back cover](#).
2. Remove the [stand](#).
3. Remove the [inner frame](#).
4. Remove the [system-board shield](#).
5. Remove the [I/O bracket](#).
6. Remove the [I/O board](#).

Procedure

1. Disconnect the touch-screen cable (TOUCH1) from the system board.
2. Disconnect the display-converter cable (CONVERTER) from the display assembly through its slot on the middle frame.
3. Remove the 11 screws (M3x5) that secure the middle frame to the display assembly.



4. Lift the middle frame and hold in place at an angle off the display assembly.
5. Push the touch-screen cable (TOUCH1) and the display-panel cable (EDPCN1) through the slots on the middle frame.
6. Lift the middle frame off the display assembly.



After performing all the above steps, we are left with the display assembly.



Replacing the display assembly

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

Topics:

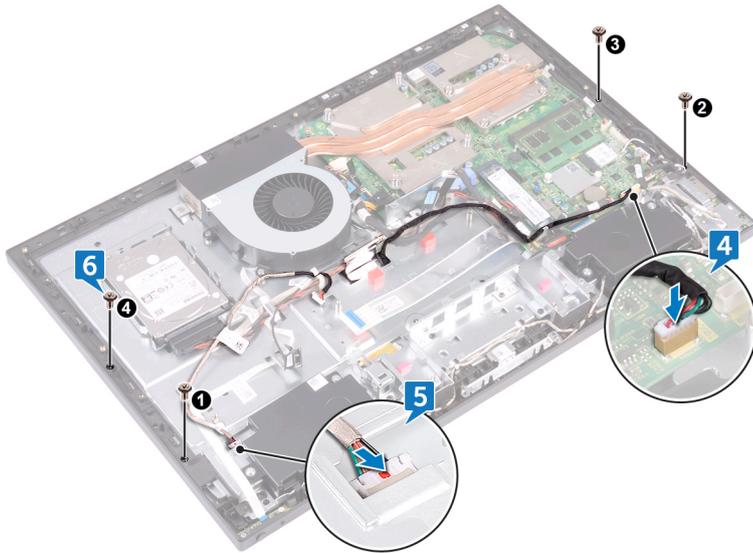
- [Procedure](#)
- [Post-requisites](#)

Procedure

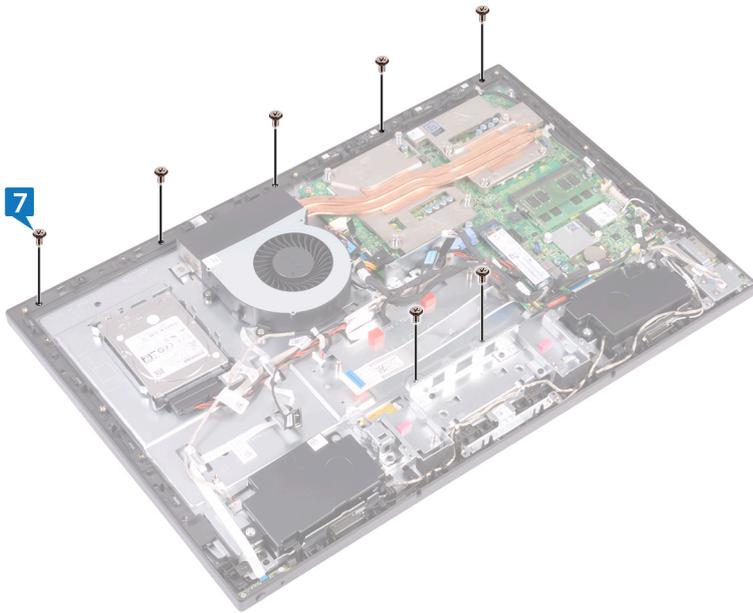
1. Route the touch-screen cable (TOUCH1) and the display-panel cable (EDPCN1) through the slots on the middle frame.
2. Align the display assembly to the slot on the middle frame and slide the display assembly into the slot on the middle frame.
3. Turn the computer over.



4. Connect touch-screen cable (TOUCH1) to the system board.
5. Connect display-converter cable (CONVERTER) to the display assembly through its slot on the middle frame.
6. In sequential order, replace the four screws (M3x5) that secure the display assembly to the middle frame.



7. Replace the seven remaining screws (M3x5) that secure the display assembly to the middle frame.



Post-requisites

1. Replace the [I/O board](#).
2. Replace the [I/O bracket](#).
3. Replace the [system-board shield](#).
4. Replace the [inner frame](#).
5. Replace the [stand](#).
6. Replace the [back cover](#).

BIOS setup program

Topics:

- [BIOS overview](#)
- [Entering BIOS setup program](#)
- [System Setup Options](#)
- [Clearing forgotten passwords](#)
- [Clearing CMOS settings](#)

BIOS overview

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

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

Use the BIOS Setup program for the following purposes:

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

Entering BIOS setup program

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

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

System Setup Options

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

Table 3. System information

Main — System Information	
BIOS Revision	Displays the BIOS revision number.
BIOS Build Date	Displays the BIOS build date in mm/dd/yyyy format.
System Name	Displays the computer model.
System Time	Displays the current time in hh:mm:ss format.
System Date	Displays the current date in mm/dd/yyyy format.
Service Tag	Displays the Service Tag of the computer.

Table 3. System information (continued)

Main — System Information	
Service Tag Input	Allows you to enter the Service Tag of the computer if the Service Tag field is empty.
Asset Tag	Displays the asset tag of the computer when the asset tag is present.

Table 4. Processor information

Main — Processor Information	
Processor Type	Displays the processor type.
Processor ID	Displays the processor ID.
Processor Core Count	Processor Core Count.
Processor L1 Cache	Displays the processor's L1 cache size.
Processor L2 Cache	Displays the processor's L2 cache size.
Processor L3 Cache	Displays the processor's L3 cache size.

Table 5. Memory Information

Main — Memory Information	
Memory Installed	Displays the memory installed.
Memory Available	Displays the memory available.
Memory Running Speed	Displays the memory speed in MHz.
Memory Technology	Displays the type of installed memory.

Table 6. SATA Information

Main — SATA Information	
SATA 1:	
Device Type	Displays the SATA device connected to the SATA 1 connector.
Device ID	Displays the serial number of the SATA 1 device.
Device Size	Displays the size of the SATA 1 device in GB, if the device is a hard drive.

Table 7. USB Configuration

Advanced — USB Configuration	
Rear USB Ports	Allows you to enable or disable the rear USB ports — Enabled or Disabled (Enabled by default).
Side USB Ports	Allows you to enable or disable the side USB ports — Enabled or Disabled (Enabled by default).

Table 8. Onboard Device Configuration

Advanced — Onboard Device Configuration	
Onboard Audio Controller	Allows you to enable or disable the onboard audio controller — Enabled or Disabled (Enabled by default).
SATA Mode	Displays the SATA mode on your computer —ATA, AHCI or RAID (RAID or AHCI by default).
Onboard LAN Controller	Allows you to enable or disable the onboard LAN controller — Enabled or Disabled (Enabled by default).
Onboard LAN Boot ROM	Allows you to boot your computer from a network — Enabled or Disabled (Disabled by default).

Table 9. Boot options

Boot	
Numlock Key	Allows you to set the status of the Num Lock key during boot to On or Off (On by default).
Secure Boot Control	Allows you to enable or disable the secure boot control—Enabled or Disabled (Enabled by default). i NOTE: To enable this feature, the computer must be in the UEFI boot mode.
Load Legacy OPRM	Allows you to load the legacy OPRM when in the UEFI boot mode. (Never by default).
Keyboard Errors	Allows you to enable or disable the display of keyboard-related errors during boot — Report or Do Not Report (Report by default).
USB Boot Support	Allows you to enable or disable booting from USB mass storage devices such as external hard drive, optical drive, USB key, and so on — Enable or Disable (Enabled by default).
Boot Mode:	
1st Boot Device	Displays the first boot device.
2nd Boot Device	Displays the second boot device.
3rd Boot Device	Displays the third boot device.
4th Boot Device	Displays the fourth boot device.
5th Boot Device	Displays the fifth boot device.
Hard Disk Drivers	Displays the boot sequence of the hard drive.
USB Storage Drivers	Displays the boot sequence of the USB storage drive.
CD/DVD ROM Drivers	Displays the boot sequence of the optical drive.

Table 10. Power options

Power	
Wake Up by Integrated LAN/WLAN	Allow the computer to be powered on by special LAN or wireless LAN signals — Enabled or Disabled (Disabled by default). i NOTE: This option can be enabled only if the Deep Sleep Mode is set to Disable.
AC Recovery	Allows you to configure the behavior of your computer after it recovers from a power failure — Power Off, Power On, or Last Power State (Power Off by default).
Auto Power On	Allows you to enable or disable the computer from turning on automatically — Enabled or Disabled (Disabled by default).
Auto Power On Mode	Allows you to set the computer to turn on automatically every day or on a preselected date. i NOTE: This option can be configured only if the Auto Power On mode is set to Enabled Everyday .or Selected Day (Selected Day by default).
Auto Power On Date	Allows you to set the date on which the computer must turn on automatically. i NOTE: This option can be configured only if the Auto Power On mode is set to Enabled 1 to 31 (15 by default).
Auto Power On Time	Allows you to set the time at which the computer must turn on automatically. i NOTE: This option can be configured only if the Auto Power On mode is set to Enabled hh:mm:ss (12:30:30 by default).
Deep Sleep Control	Allows you to set Deep Sleep Mode — Disabled. Enabled in S5 (computer is off) only, Enabled in S4 (Hibernate state of computer)and S5 by default.

Table 11. Security options

Security	
Supervisor Password	Displays the supervisor password.

Table 11. Security options (continued)

Security	
User Password	Displays the user password.
Set User Password	Allows you to set, change, or clear the user password.
Password Check	Allows you to enable password verification either when you attempt to enter system setup or each time the computer boots Setup or Always (Setup by default). i NOTE: Password Check option is visible only when the user password is set.
Set Supervisor Password	Allows you to set, change, or delete the supervisor password. The supervisor password controls access to the system setup utility. i NOTE: Deleting the supervisor password deletes the user password. Set the supervisor password before setting the user password.
User Access Level	Allows you to restrict or provide access to the system setup utility — No Access, View Only, Limited, or Full Access (Full Access by default). <ul style="list-style-type: none">• No Access: Restricts users from editing system setup options• View Only: Allows users to only view system setup options• Limited: Allows users to edit limited system setup options• Full Access: Allows users to edit all system setup options except the supervisor password

Table 12. Exit options

Exit	
Save Changes and Reset	Allows you to exit system setup and save your changes.
Discard Changes and Reset	Allows you to exit system setup and load previous values for all system setup options.
Load Defaults	Allows you to load default values for all system setup options.

Clearing forgotten passwords

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

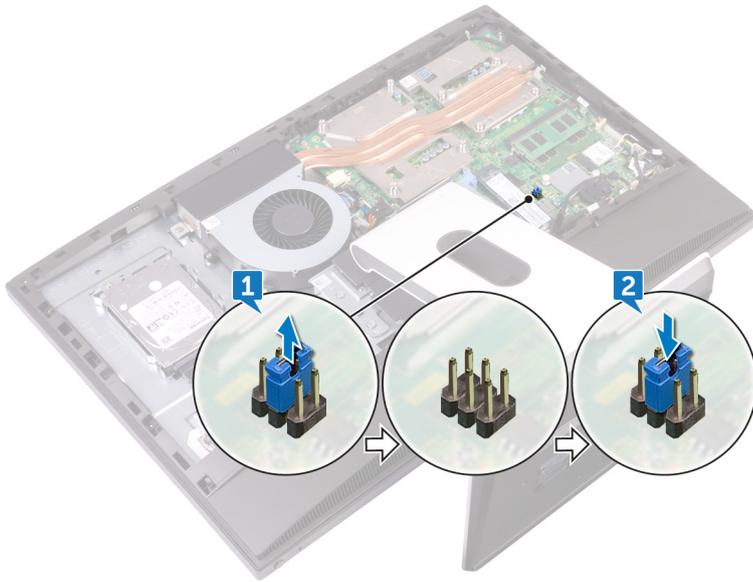
Prerequisites

1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

i **NOTE:** For the location of the jumper, see “[System board components](#)”.

1. Remove the jumper plug from the password jumper-pins.
2. Wait for 5 seconds and then replace the jumper plug in its original location.



Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Clearing CMOS settings

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

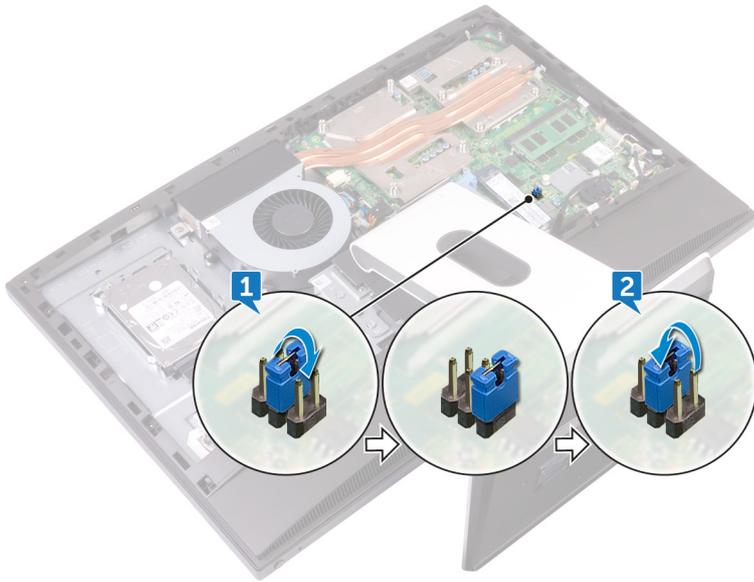
Prerequisites

1. Remove the [back cover](#).
2. Remove the [system-board shield](#).

Procedure

i **NOTE:** For more information on the location of the CMOS reset jumper, see "[System board components](#)".

1. Remove the jumper plug from the password jumper-pins and connect it to the CMOS jumper-pins.
2. Wait for 5 seconds and replace the jumper plug to its original location.



Post-requisites

1. Replace the [system-board shield](#).
2. Replace the [back cover](#).

Flashing the BIOS

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

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

Diagnostics

Power status light: Indicates the power status.

Solid Amber – The computer is unable to boot to the operating system. This indicates that the power supply or another device in the computer is failing.

Blinking Amber – The computer is unable to boot to the operating system. This indicates that the power supply is normal but another device in the computer is failing or not installed properly.

 **NOTE:** See the light patterns to determine the device that is failing.

Off – Computer is in hibernation or turned off.

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

For example, the power status light blinks amber two times followed by a pause, and then blinks white three times followed by a pause. This 2,3 pattern continues until the computer is turned off indicating the Recovery image is not found.

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

Table 13. System diagnostic lights

Light pattern	Problem description
1	System board, BIOS corruption, or ROM error
3	System board, Chipset error, Clock failure, Gate A20 failure, Super I/O failure, or Keyboard controller failure
4	Memory or RAM failure
5	Coin-cell battery failure
6	GPU failure
7	CPU failure
8	Display failure
3,6	BIOS recovery image not found
3,7	BIOS recovery image found but invalid

The computer may emit a series of beeps during start-up if the errors or problems cannot be displayed. The repetitive beep codes help the user troubleshoot problems with the computer.

Camera status light: Indicates whether the camera is in use.

- Solid white – Camera is in use.
- Off – Camera is not in use.

Getting help and contacting Dell

Self-help resources

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

Table 14. Self-help resources

Information about Dell products and services	www.dell.com
Dell Help & Support app	
Get started app	
Accessing help	In Windows search, type <code>Help and Support</code> , and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Learn about your operating system, setting up and using your computer, data backup, diagnostics, and so on.	See <i>Me and My Dell</i> at www.dell.com/support/manuals .

Contacting Dell

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

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

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