

Inspiron 5680

Service Manual



Notes, cautions, and warnings

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

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

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

Contents

Chapter 1: Before working inside your computer.....	9
Before you begin	9
Chapter 2: After working inside your computer.....	10
Chapter 3: Safety instructions.....	11
Chapter 4: Recommended tools.....	12
Chapter 5: System board components.....	13
Chapter 6: Screw list.....	14
Chapter 7: Removing the right-side cover.....	16
Procedure.....	16
Chapter 8: Replacing the right-side cover.....	17
Procedure.....	17
Chapter 9: Removing the front cover.....	18
Prerequisites.....	18
Procedure.....	18
Chapter 10: Replacing the front cover.....	19
Procedure.....	19
Post-requisites.....	19
Chapter 11: Removing the slim optical drive.....	20
Prerequisites.....	20
Procedure.....	20
Chapter 12: Replacing the slim optical drive.....	22
Procedure.....	22
Post-requisites.....	22
Chapter 13: Removing the light bar.....	23
Prerequisites.....	23
Procedure.....	23
Chapter 14: Replacing the light bar.....	24
Procedure.....	24
Post-requisites.....	24

Chapter 15: Removing the memory module.....	25
Prerequisites.....	25
Procedure.....	25
Chapter 16: Replacing the memory module.....	27
Procedure.....	27
Post-requisites.....	27
Chapter 17: Removing the front I/O-panel.....	28
Prerequisites.....	28
Procedure.....	28
Chapter 18: Replacing the front I/O-panel.....	30
Procedure.....	30
Post-requisites.....	30
Chapter 19: Removing the logo board.....	31
Prerequisites.....	31
Procedure.....	31
Chapter 20: Replacing the logo board.....	32
Procedure.....	32
Post-requisites.....	32
Chapter 21: Removing the front-panel light board.....	33
Prerequisites.....	33
Procedure.....	33
Chapter 22: Replacing the front-panel light board.....	35
Procedure.....	35
Post-requisites.....	35
Chapter 23: Removing the solid-state drive.....	36
Prerequisites.....	36
Procedure.....	36
Chapter 24: Replacing the solid-state drive.....	38
Procedure.....	38
Post-requisites.....	39
Chapter 25: Removing the wireless card.....	40
Prerequisites.....	40
Procedure.....	40
Chapter 26: Replacing the wireless card.....	42
Procedure.....	42
Post-requisites.....	42

Chapter 27: Removing the coin-cell battery.....	43
Prerequisites.....	43
Procedure.....	43
Chapter 28: Replacing the coin-cell battery.....	44
Procedure.....	44
Post-requisites.....	44
Chapter 29: Removing the 3.5-inch hard drive.....	45
Prerequisites.....	45
Procedure.....	45
Chapter 30: Replacing the 3.5-inch hard drive.....	47
Procedure.....	47
Post-requisites.....	47
Chapter 31: Removing the 2.5-inch hard drive.....	48
Prerequisites.....	48
Procedure.....	48
Chapter 32: Replacing the 2.5-inch hard drive.....	50
Procedure.....	50
Post-requisites.....	50
Chapter 33: Removing the fan.....	51
Prerequisites.....	51
Procedure.....	51
Chapter 34: Replacing the fan.....	52
Procedure.....	52
Post-requisites.....	52
Chapter 35: Removing the graphics card.....	53
Prerequisites.....	53
Procedure.....	53
Chapter 36: Replacing the graphics card.....	55
Procedure.....	55
Post-requisites.....	55
Chapter 37: Removing the VR heat sink.....	56
Prerequisites.....	56
Procedure.....	56
Chapter 38: Replacing the VR heat sink.....	57
Procedure.....	57
Post-requisites.....	57

Chapter 39: Removing the processor fan.....	58
Prerequisites.....	58
Procedure.....	58
Chapter 40: Replacing the processor fan.....	60
Procedure.....	60
Post-requisites.....	60
Chapter 41: Removing the heat sink.....	61
Prerequisites.....	61
Procedure.....	61
Chapter 42: Replacing the heat sink.....	62
Procedure.....	62
Post-requisites.....	62
Chapter 43: Removing the processor-cooling assembly.....	63
Prerequisites.....	63
Procedure.....	63
Chapter 44: Replacing the processor-cooling assembly.....	65
Procedure.....	65
Post-requisites.....	65
Chapter 45: Removing the processor.....	66
Prerequisites.....	66
Procedure.....	66
Chapter 46: Replacing the processor.....	68
Procedure.....	68
Post-requisites.....	68
Chapter 47: Removing the power-supply unit.....	69
Prerequisites.....	69
Procedure.....	69
Chapter 48: Replacing the power-supply unit.....	71
Procedure.....	71
Post-requisites.....	71
Chapter 49: Removing the top cover.....	72
Prerequisites.....	72
Procedure.....	72
Chapter 50: Replacing the top cover.....	73
Procedure.....	73
Post-requisites.....	73

Chapter 51: Removing the front bezel	74
Prerequisites.....	74
Procedure.....	74
Chapter 52: Replacing the front bezel.....	75
Procedure.....	75
Post-requisites.....	75
Chapter 53: Removing the power-button board.....	76
Prerequisites.....	76
Procedure.....	76
Chapter 54: Replacing the power-button board.....	78
Procedure.....	78
Post-requisites.....	78
Chapter 55: Removing the antenna.....	79
Prerequisites.....	79
Procedure.....	79
Chapter 56: Replacing the antenna.....	80
Procedure.....	80
Post-requisites.....	80
Chapter 57: Removing the left-side cover.....	81
Prerequisites.....	81
Procedure.....	81
Chapter 58: Replacing the left-side cover.....	83
Procedure.....	83
Post-requisites.....	83
Chapter 59: Removing the bottom cover.....	84
Prerequisites.....	84
Procedure.....	84
Chapter 60: Replacing the bottom cover.....	85
Procedure.....	85
Post-requisites.....	85
Chapter 61: Removing the rear cover.....	86
Prerequisites.....	86
Procedure.....	86
Chapter 62: Replacing the rear cover.....	88
Procedure.....	88
Post-requisites.....	88

Chapter 63: Removing the system board.....	89
Prerequisites.....	89
Procedure.....	89
Chapter 64: Replacing the system board.....	91
Procedure.....	91
Post-requisites.....	91
Chapter 65: BIOS setup program.....	92
BIOS overview.....	92
Entering BIOS setup program.....	92
Clearing Forgotten Passwords.....	92
Prerequisites.....	92
Procedure.....	92
Post-requisites.....	93
Clearing CMOS Settings.....	93
Prerequisites.....	93
Procedure.....	93
Post-requisites.....	94
Chapter 66: Flashing the BIOS.....	95
Chapter 67: Diagnostics.....	96
Chapter 68: Getting help and contacting Dell.....	98

Before working inside your computer

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

Topics:

- Before you begin

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**.
(i) 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.

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.

Safety instructions

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

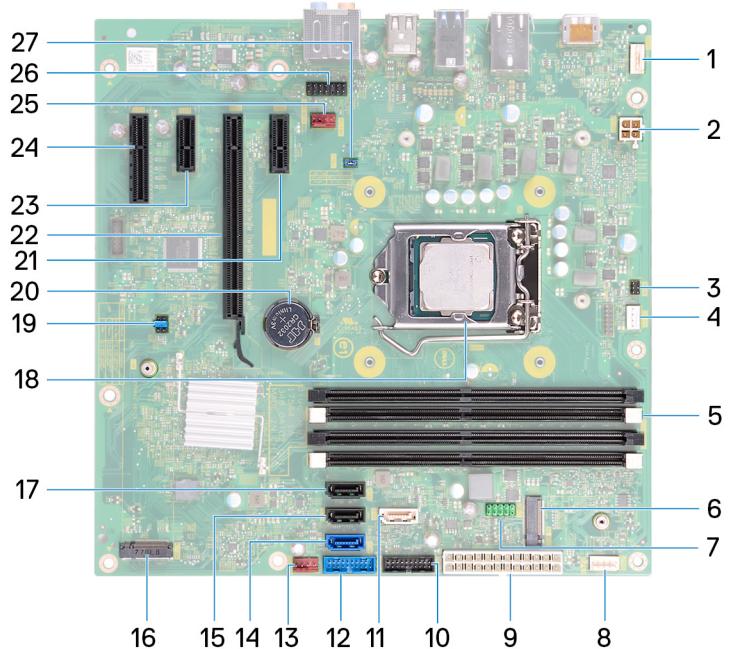
-  NOTE:** Before working inside your computer, read the safety information that shipped with your computer. For more safety best practices, see the Regulatory Compliance home page at www.dell.com/regulatory_compliance.
-  NOTE:** Disconnect all power sources before opening the computer cover or panels. 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:** 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:** 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 using a wrist grounding strap or by periodically 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 #1
- Plastic scribe

System board components



- 1. light-bar connector
- 2. processor-power cable connector
- 3. power-button board cable connector
- 4. processor-fan cable connector
- 5. memory-module slot
- 6. wireless-card slot
- 7. USB 2.0 cable connector
- 8. light-bar connector
- 9. power-supply unit cable connector
- 10. USB 3.1 (Type-C) cable connector
- 11. SATA1 connector
- 12. USB 3.0 cable connector
- 13. front chassis-fan connector
- 14. SATA0 connector
- 15. M.2 SSD connector
- 16. processor socket
- 17. SATA3 connector
- 18. coin-cell battery
- 19. jumper plug
- 20. graphics-card slot
- 21. PCI-Express X1 slot
- 22. PCI-Express X4 slot
- 23. PCI-Express X4 slot
- 24. system-fan connector
- 25. front-audio connector
- 26. CFsel1 jumper plug

Screw list

The following table provides the list of screws that are used for securing different components to the computer.

Table 1. Screw list

Component	Secured to	Screw type	Quantity	Screw image
Right-side cover	Chassis	6-32UNCx6.3	2	
Light bar	Chassis	M3x5	1	
Solid-state drive	System board	M2x3.5	1	
Front panel light board	Chassis	M3x5	1	
Logo board	Chassis	M3x5	2	
Wireless card	System board	M2x3.5	1	
3.5" hard drive	Chassis	6-32UNCx3.6	2	
Hard-drive bracket	Hard drive	6-32UNCx3.6	4	
2.5" hard drive	Chassis	6-32UNCx3.6	1	
Hard-drive bracket	Hard drive	M3x3.5	4	
Graphics-card bracket	Chassis	6-32UNCx3.6	2	
Graphics card	Chassis	6-32UNCX3.6	1 2	
Fan	Chassis	6-32UNCx3.6	1	
Power-supply unit cover	Chassis	6-32UNCx6.3	2	
Power-supply unit	Chassis	6-32UNCx6.3	4	

Table 1. Screw list (continued)

Component	Secured to	Screw type	Quantity	Screw image
Front cover	Chassis	6-32UNCX3.6	1	
Optical drive	Chassis	M3x5	1	
Front I/O panel	Chassis	M3x5	2	
Top cover	Chassis	M3x5	1	
Front bezel	Chassis	M3x5	11	
Antenna	Chassis	M3x5	2	
Left-side cover	Chassis	M3x5	2	
Bottom cover	Chassis	M3x5	3	
Top bracket	Chassis	M3x5	2	
System board	Chassis	6-32UNCx6.3	8	

Removing the right-side cover

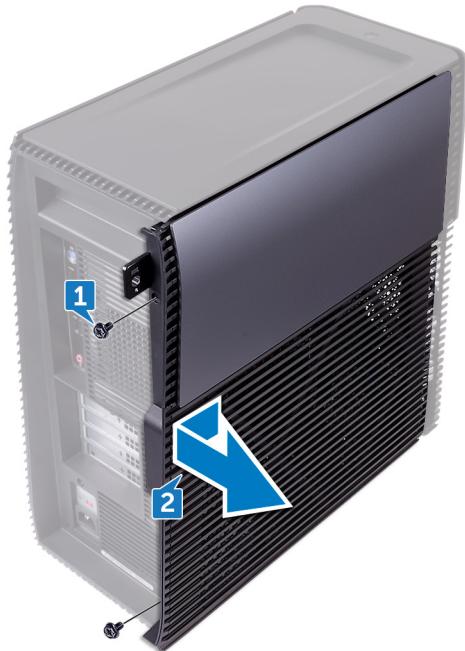
NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Topics:

- [Procedure](#)

Procedure

1. Remove the two screws (6-32UNCx6.3) that secure the cover to the chassis.
2. Release the computer cover by sliding it towards the back of the computer and lift the cover off the chassis.



Replacing the right-side 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. Align the tabs on the computer cover with the slots on the chassis and slide it towards the front of the computer.
2. Replace the two screws (6-32UNCx6.3) that secure the computer cover to the chassis.

Removing the front 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:

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

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Remove the screw (6-32UNCx3.6) that secures the front cover to the chassis.
2. Grasp and release the front cover tabs sequentially from the top, by moving them outward from the front bezel.



Replacing the front cover

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.

Topics:

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

Procedure

1. Align and insert the front-cover tabs into the front-panel slots and snap into place.
2. Replace the screw (6-32UNCx3.6) that secures the front cover to the chassis.

Post-requisites

Replace the [right-side cover](#).

Removing the slim optical 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.

Topics:

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

Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [front cover](#).

Procedure

1. Disconnect the power cable from the optical drive.
2. Disconnect the data cable from the optical drive.
3. Pull to slide the slim optical-drive assembly out through the front of the computer.



4. Using your finger tips, pry the slim optical-drive bracket from the optical drive.
5. Lift the slim optical-drive assembly off the slim optical-drive bracket.



6. Remove the slim optical-drive bezel from the optical drive.



Replacing the slim optical drive

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.

Topics:

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

Procedure

1. Align and snap the slim optical-drive bezel to the optical drive.
2. Place the slim optical-drive assembly on the slim optical-drive bracket and snap the slim optical-drive assembly in place.
3. Slide the slim optical-drive assembly into the slim optical-drive bay through the front of the computer.
4. Connect the data cable and power cable to the optical drive.
5. Place the computer in an upright position.

Post-requisites

1. Replace the [front cover](#).
2. Replace the [right-side cover](#).

Removing the light bar

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:

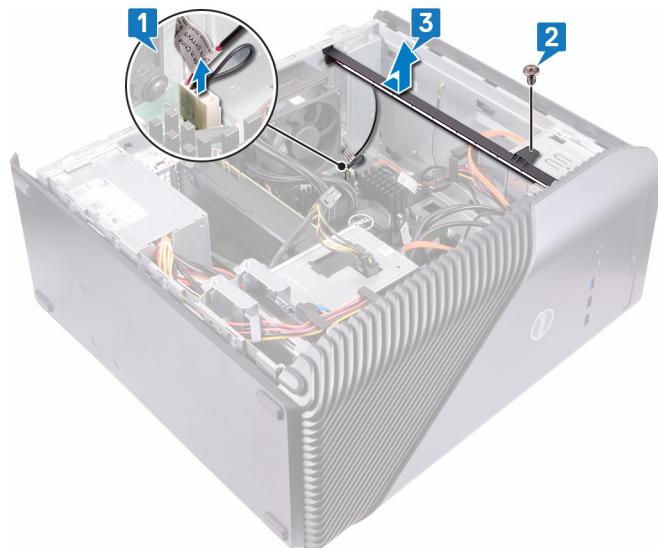
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Disconnect the light bar cable from its connector on the chassis.
2. Remove the screw (M3x5) that secures the light bar to the chassis.
3. Slide and remove the light bar from the chassis.



Replacing the light bar

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.

Topics:

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

Procedure

1. Align and slide the light bar into the slot on the chassis.
2. Replace the screw (M3x5) that secures the light bar to the chassis.
3. Connect the light bar cable to its connector on the chassis.

Post-requisites

Replace the [right-side cover](#).

Removing the memory module

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.

Topics:

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

Prerequisites

Remove the [right-side cover](#).

Procedure

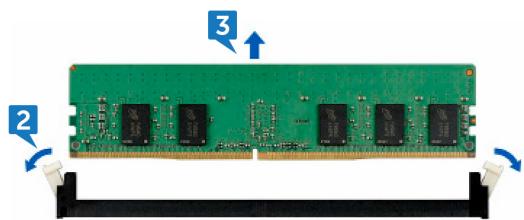
1. Lay the computer on the left side and locate the memory card slot on the system board.



2. Using your fingertips, spread apart the securing clip 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.

i **NOTE:** If the memory module is difficult to remove, gently ease the memory module back and forth to remove it from the slot.

⚠ CAUTION: To prevent damage to the memory module, hold the memory module by the edges. Do not touch the components on the memory module.



Replacing the memory module

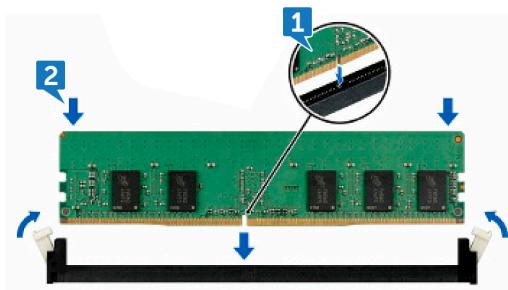
NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices, 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 and insert the memory module into the memory-module slot.
2. Press the memory module down until it clicks into place.



3. Place the computer in an upright position.

Post-requisites

Replace the right-side cover.

Removing the front I/O-panel

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:

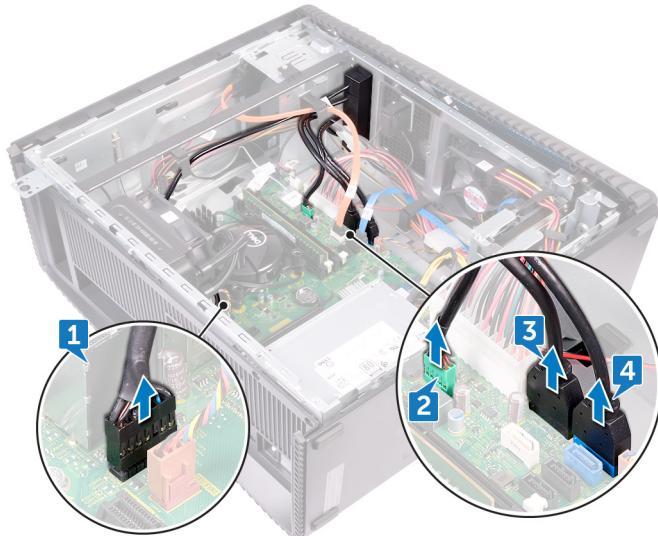
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [front cover](#).

Procedure

1. Lay the computer on the left side and disconnect the front-audio cable from the system board.
2. Disconnect the USB 2.0 cable from the system board.
3. Disconnect the USB 3.1 (Type-C) cable from the system board.
4. Disconnect the USB 3.0 cable from the system board.



5. Remove the two screws (M3x5) that secures the front I/O panel to the chassis.
6. Pull out the front I/O panel along with the cables, through the front of the computer.



Replacing the front I/O-panel

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.

Topics:

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

Procedure

1. Slide the front I/O panel into the front I/O panel bay through the front of the computer.
2. Replace the two screws (M3x5) that secures the front I/O panel to the chassis.
3. Connect the front-audio cable, USB 2.0 cable, USB 3.0 cable and USB 3.1 (Type-C) cable to the system board.
4. Place the computer in an upright position.

Post-requisites

1. Replace the [front cover](#).
2. Replace the [right-side cover](#).

Removing the logo 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 [right-side cover](#).
2. Remove the [front cover](#).

Procedure

1. Disconnect the logo-board cable from the logo board.
2. Disconnect the two screws (M3x5) that secures the logo board to the chassis.
3. Remove the logo board from the chassis.



Replacing the logo board

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.

Topics:

- Procedure
- Post-requisites

Procedure

1. Align the logo board with the slot on the chassis and replace the two screws (M3x5) that secures the logo board to the chassis.
2. Connect the logo-board cable to the logo board.

Post-requisites

1. Replace the [front cover](#).
2. Replace the [right-side cover](#).

Removing the front-panel light 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:

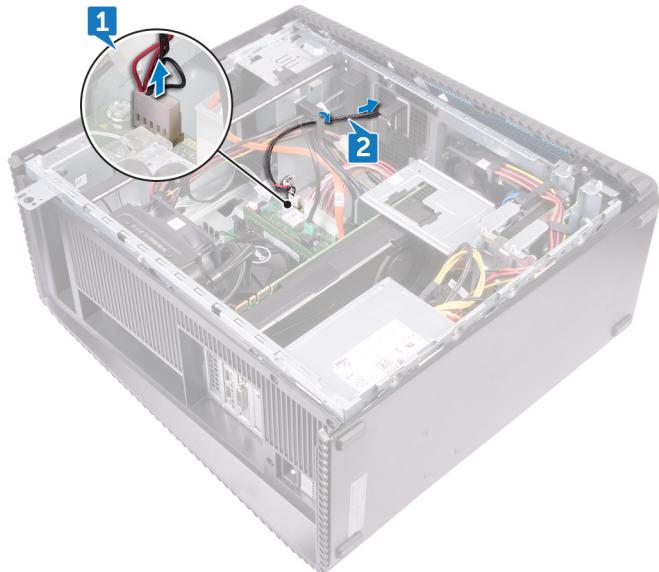
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [front cover](#).

Procedure

1. Lay the computer on the left side and disconnect the front panel light-board cable from the system board.
2. Remove the front panel light-board cable from the routing guides on the chassis.



3. Press the tab and release it from the routing guide on the chassis and disconnect the front light bar cable from the logo board.
4. Remove the screw (M3x5) that secures the front panel light-board to the chassis.
5. Remove the front panel light-board from the chassis.



Replacing the front-panel light board

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.

Topics:

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

Procedure

1. Align the front panel light-board cable to the slot on the chassis.
2. Replace the screw (M3x5) that secures the front panel light-board to the chassis.
3. Connect the front panel light-board cable to the logo board.
4. Route the cables through the routing guides on the chassis and connect the front panel light-board cable to the system board.
5. Place the computer in an upright position.

Post-requisites

1. Replace the [front cover](#).
2. Replace the [right-side 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

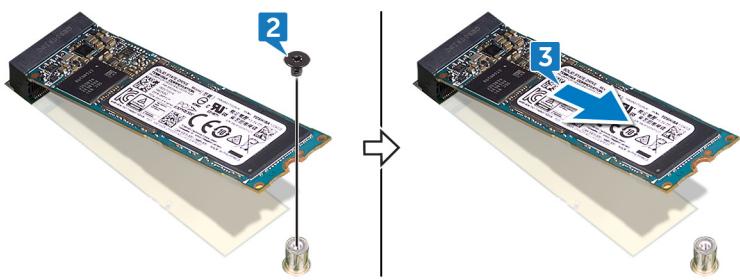
Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and locate the solid-state drive slot on the system board.



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



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:

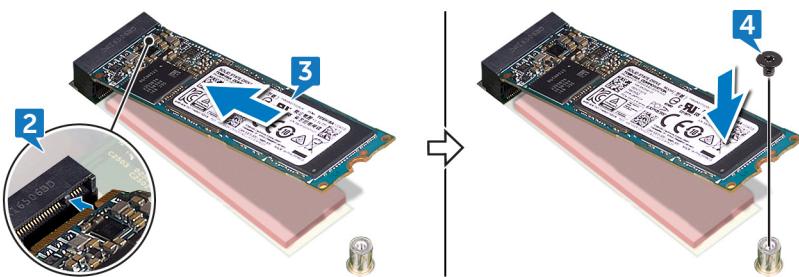
- [Procedure](#)
- [Post-requisites](#)

Procedure

1. Adhere the thermal pad to the system board.



2. Align the notch on the solid-state drive with the tab on the solid-state drive slot.
3. Insert the solid-state drive at a 45-degree angle into the solid-state drive slot.
4. Press the other end of the solid-state drive down and replace the screw (M2x3.5) that secures the solid-state drive to the system board.



5. Place the computer in an upright position.

Post-requisites

Replace the [right-side 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

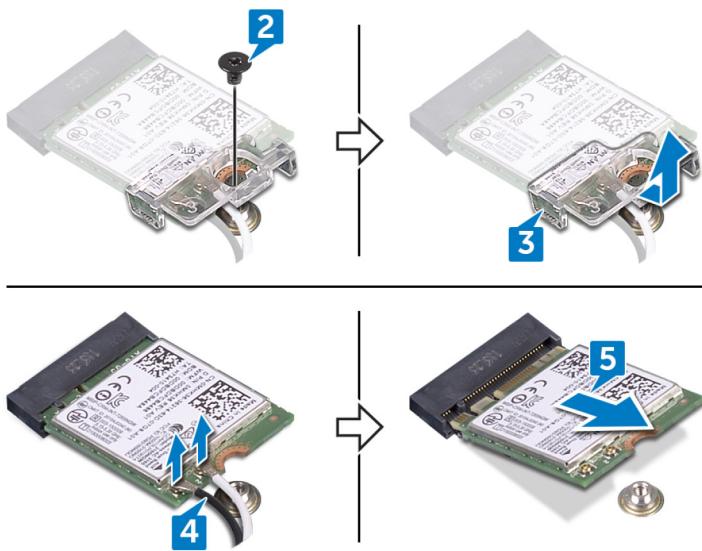
Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and 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 bracket off the wireless card.
4. Disconnect the antenna cables from the wireless card.
5. Slide and remove the wireless card from the wireless-card slot.



Replacing the wireless card

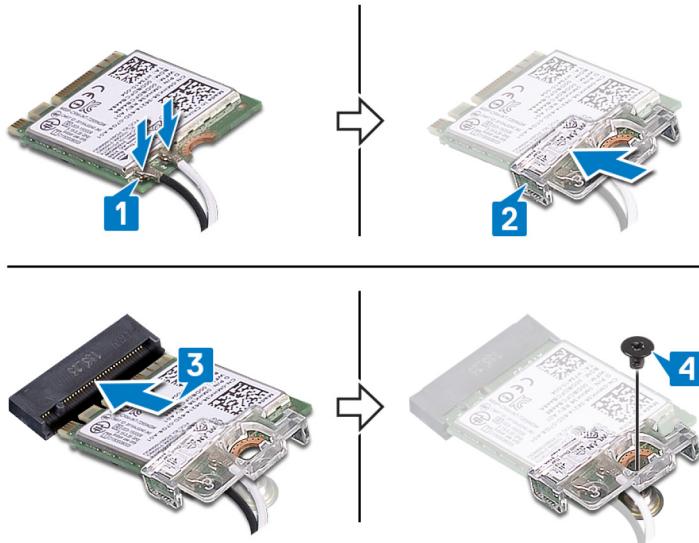
NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Topics:

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

Procedure

1. Connect the antenna cables to the wireless card.
2. Place the wireless-card bracket over the wireless card.
3. Align the notch on the wireless card with the tab on the wireless-card slot and slide the wireless card at an angle into the wireless-card slot.
4. Replace the screw (M2x3.5) that secures the wireless card to the system board.



5. Place the computer in an upright position.

Post-requisites

Replace the [right-side 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

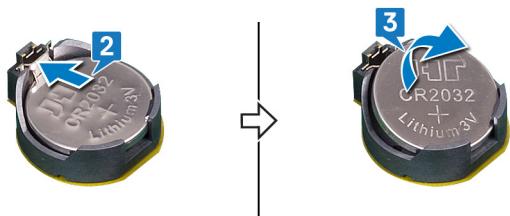
Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and locate the coin-cell battery on the system board.



2. Press the tab on the coin-cell battery socket.
3. Release the coin-cell battery out of its socket.



Replacing the coin-cell battery

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.

Topics:

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

Procedure

1. Insert the coin-cell battery into the battery socket with the positive side facing up, and snap the battery into place.
2. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the 3.5-inch hard 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.

Topics:

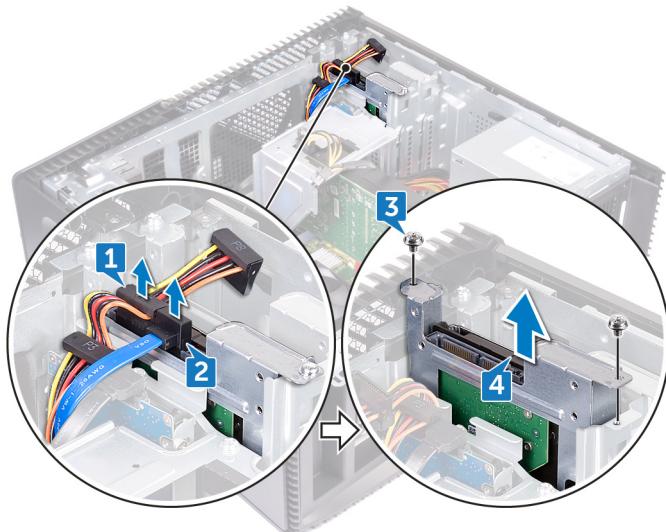
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and disconnect the power cable from the hard drive.
2. Disconnect the data cable from the hard drive.
3. Remove two screws (6-32UNCx3.6) that secure the hard-drive assembly to the side-chassis.
4. Lift the hard-drive assembly out of the slot on the side-chassis.



5. Remove the four screws (6-32UNCx3.6) that secure the hard-drive bracket to the hard drive.
6. Lift the hard drive off the hard-drive bracket.



Replacing the 3.5-inch hard 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.

Topics:

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

Procedure

1. Place the hard drive in the hard-drive bracket.
2. Align the screw holes on the hard drive with the screw holes on the hard-drive bracket.
3. Replace the four screws (6-32UNCx3.6) that secure the hard-drive bracket to the hard drive.
4. Slide the hard-drive assembly into the slot on the side-chassis and replace the two screws (6-32UNCx3.6) that secure the hard-drive assembly to the side-chassis.
5. Connect the data cables and the power cables to the hard drive.
6. Place the computer in an upright position.

Post-requisites

Replace the right-side cover.

Removing the 2.5-inch hard 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.

Topics:

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

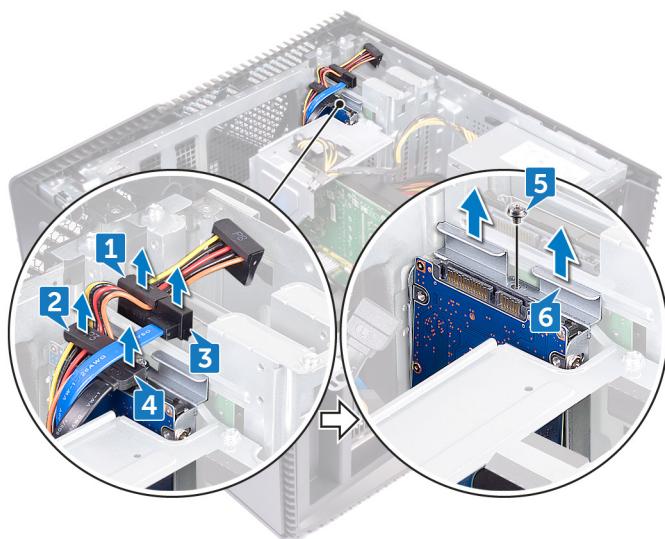
Prerequisites

Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and disconnect the power cable from the 3.5-inch hard drive.
2. Disconnect the power cable from the 2.5-inch hard drive.
3. Disconnect the data cable from the 3.5-inch hard drive.
4. Disconnect the data cable from the 2.5-inch hard drive.
5. Remove the screw (6-32UNCx3.6) that secures the hard-drive assembly to the side-chassis.
6. Lift the hard-drive assembly from the side-chassis.

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



7. Remove the four screws (M3x3.5) that secure the hard-drive bracket to the hard drive.
8. Lift the hard drive off the hard-drive bracket.



Replacing the 2.5-inch hard 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.

Topics:

- Procedure
- Post-requisites

Procedure

1. Place the hard drive in the hard-drive bracket.
2. Align the screw holes on the hard drive with the screw holes on the hard-drive bracket.
3. Replace the four screws (M3x3.5) that secure the hard-drive bracket to the hard drive.
4. Slide the hard-drive assembly into the slot on the side-chassis and replace the screw (6-32UNCx3.6) that secures the hard-drive assembly to the side-chassis.
5. Connect the data cables and the power cables to the hard drive.
6. Place the computer in an upright position.

Post-requisites

Replace the right-side cover.

Removing the 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

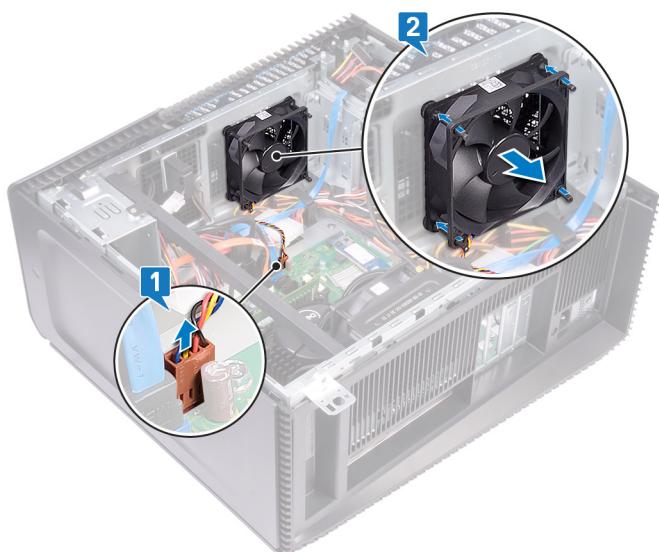
Remove the [right-side cover](#).

Procedure

NOTE: Note the orientation of the fan while removing the so that you can replace it correctly.

NOTE: Applicable only for computers shipped with liquid cooling assembly.

1. Lay the computer on the left side and remove the system-fan cable from the system board.
2. Pull the system fan to release it from the rubber grommets on the chassis and remove the fan from the chassis.



Replacing the 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 slots on the system fan with the rubber grommets on chassis.
2. Route the rubber grommets through the slots on system fan and pull the rubber grommets until the fan snaps into position.
3. Connect the system-fan cable to the system board.
4. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the graphics 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:

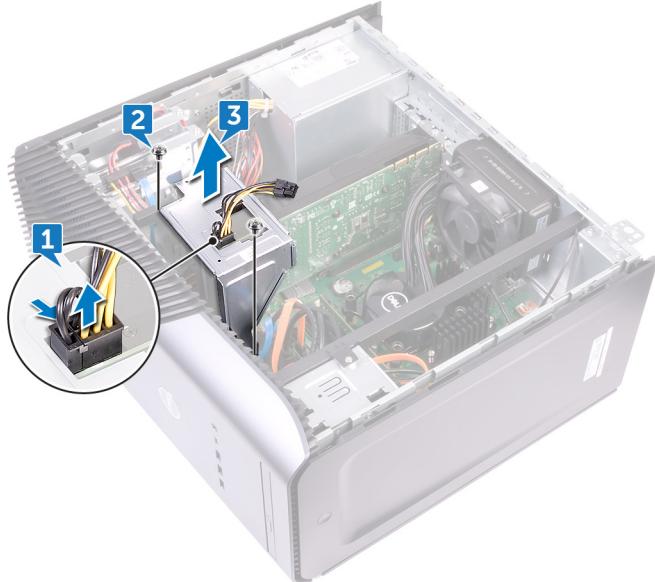
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Press the tab and disconnect the graphics-card cable from the graphics card.
2. Lay the computer on the left side and remove the two screws (6-32UNCx3.6) that secures the graphics-card bracket to the chassis.
3. Lift the graphics-card bracket off the chassis.



4. Remove the two screws (6-32UNCx3.6) that secures the graphics card to the chassis.
5. Push the securing tab on the PCIe slot away from the graphics card, grasp the card by its top corner, and ease it out of the slot.
6. Lift the graphics card off the computer.



Replacing the graphics 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

1. Align the graphics card with the slot on the chassis.
2. Align and place the graphics card into the slot on system board and press down firmly until the graphics card snaps into place.
3. Replace the two screws (6-32UNCx3.6) that secure the graphics card to the chassis.
4. Align the tab on the graphics-card bracket to the slot on the chassis.
5. Align the screw holes on the graphics-card bracket to the screw holes on the chassis and replace the two screws (6-32UNCx3.6) that secures the graphics-card bracket to the chassis.
6. Connect the graphics-card cable to the graphics card.
7. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the VR 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.

NOTE: The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

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:

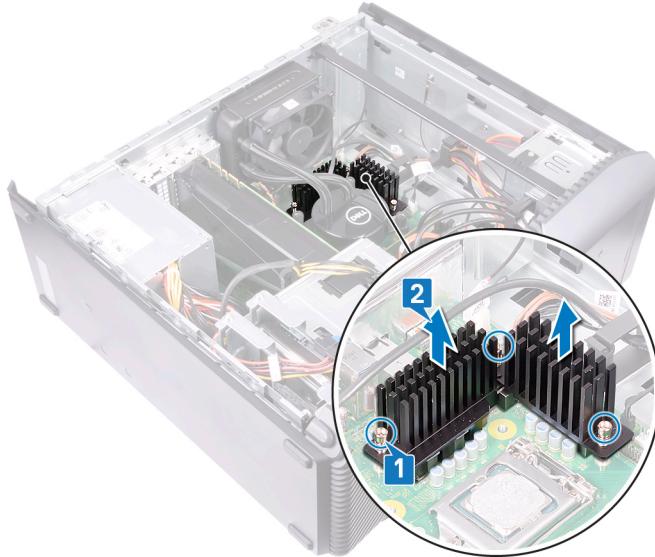
- Prerequisites
- Procedure

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Loosen the three captive screws that secure the VR heat sink to the system board.
2. Lift the VR heat sink out of the chassis.



Replacing the VR heat sink

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.

Topics:

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

Procedure

1. Align the three captive screws on the VR heat sink with the slots on the system board.
2. Tighten the captive screws that secure the VR heat sink to the system board.

Post-requisites

Replace the [right-side cover](#).

Removing the processor 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](#)

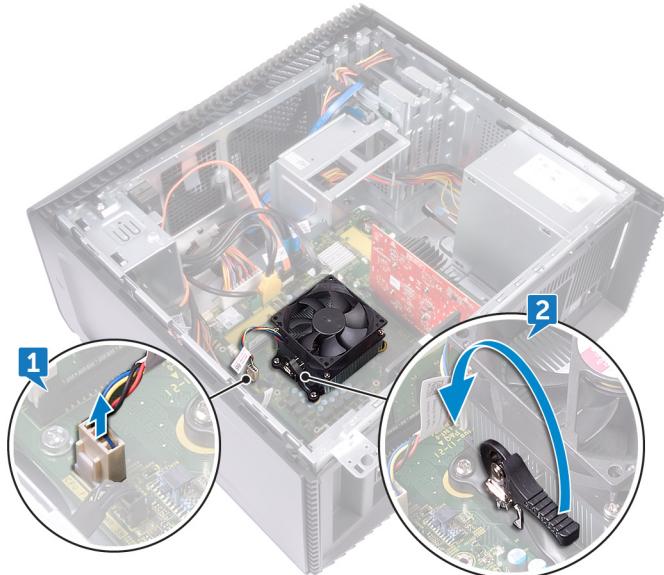
Prerequisites

Remove the [right-side cover](#).

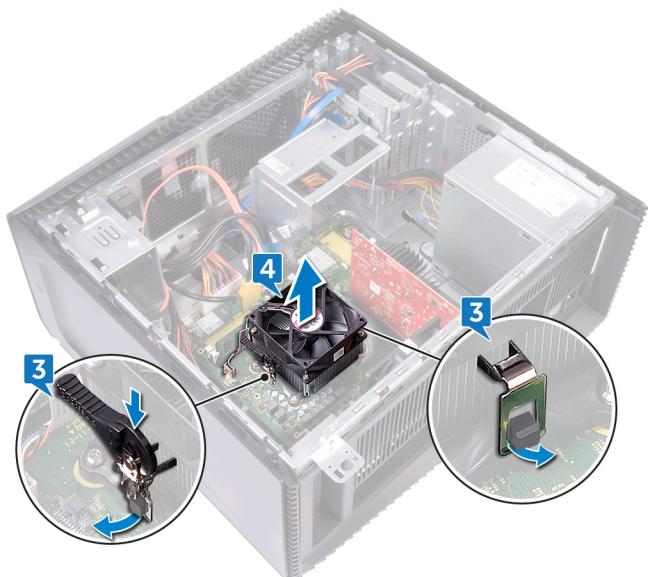
Procedure

NOTE: Applicable only for computers shipped with processor fan.

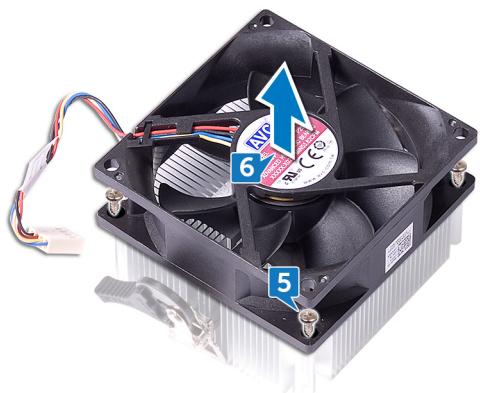
1. Lay the computer on the left side and disconnect the processor-fan cable from the system board.
2. Lift the release-lever on the heat sink.



3. Press the lever and release it from the securing tabs on both sides of the processor.
4. Lift the processor fan and heat-sink assembly off the system board.



5. Remove the four screws (M3x7.26) that secures the processor fan to the heat-sink assembly.
6. Lift the processor fan from the heat-sink.



Replacing the processor 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 processor fan with the screw holes on the heat sink.
2. Replace the four screws (M3x7.26) that secure the processor fan to the heat sink.
3. Align the processor fan and heat-sink assembly to the slot on the processor.
4. Align the slots on the release-lever with the securing tabs on both sides of the processor.
5. Pivot the release-lever backwards and secure processor fan and heat-sink assembly on the processor.
6. Connect the processor-fan cable to the system board.
7. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the heat sink

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.

i **NOTE:** The heat sink may become hot during normal operation. Allow sufficient time for the heat sink to cool before you touch it.

⚠ 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

Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [processor fan](#).

Procedure

i **NOTE:** Applicable only for computers with processor fan.

After performing all the above steps, you are left with the heat sink.



Replacing the 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:** Incorrect alignment of the heat sink can damage the system board and processor.

 **NOTE:** If either the system board or the heat sink is replaced, use the thermal pad/paste provided in the kit to ensure that thermal conductivity is achieved.

Topics:

- Procedure
- Post-requisites

Procedure

Place the heat sink on a clean and flat surface.

Post-requisites

1. Replace the [processor fan](#).
2. Replace the [right-side cover](#).

Removing the processor-cooling 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](#)

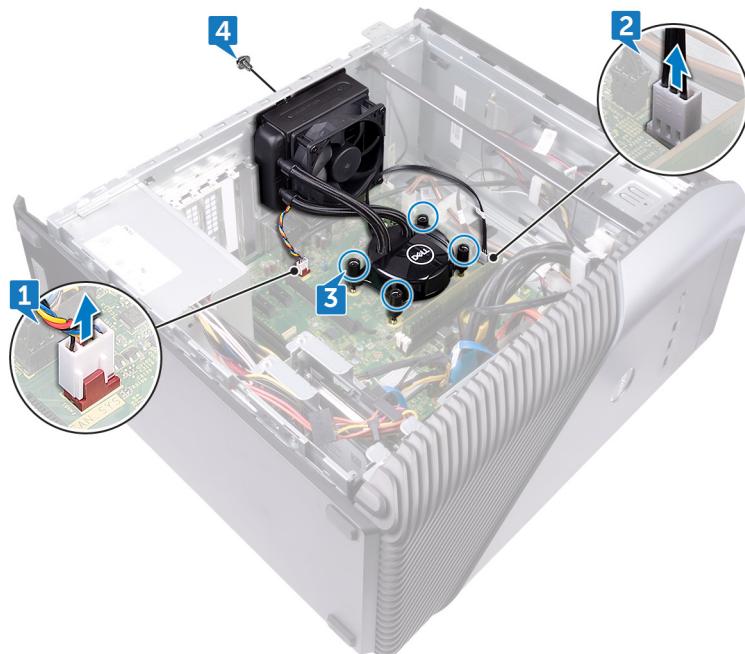
Prerequisites

Remove the [right-side cover](#).

Procedure

NOTE: Applicable only for computers with liquid cooling assembly configuration.

1. Lay the computer on the left side and disconnect the fan cable from the system board.
2. Disconnect the processor-cooling assembly cable from the system board.
3. In the reverse sequential order (as indicated on the processor-cooling assembly), loosen the four captive screws that secure the processor-cooling assembly to the system board.
4. Remove the screw (6-32UNCx3.6) that secures the fan to the chassis.



5. Lift and release the fan from the chassis.
6. Lift the processor-cooling assembly along with the fan off the system board.



Replacing the processor-cooling 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. Align the four captive screws on the processor-cooling assembly with the slot on the system board.
2. In sequential order (as indicated on the processor-cooling assembly), tighten the captive screws that secure the processor-cooling assembly to the system board.
3. Align the tabs on the fan with the slots on the chassis and place the fan in position.
4. Replace the screw (6-32UNCx3.6) that secures the fan to the chassis.
5. Connect the processor-cooling assembly cable to the system board.
6. Place the computer in an upright position.
7. Connect the fan cable to the system board.
8. Place the computer in an upright position.

Post-requisites

Replace the [right-side 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

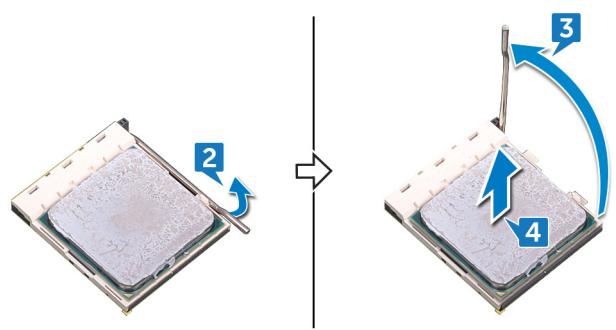
1. Remove the [right-side cover](#).
2. Remove the [processor-cooling assembly](#) or [processor fan](#).

Procedure

1. Lay the computer on the left side and locate the processor on the system board.



2. Press the release lever down and then push it away from the processor to release it from the tab.
3. Extend the release lever completely and open the processor cover.
4. Lift the processor off 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

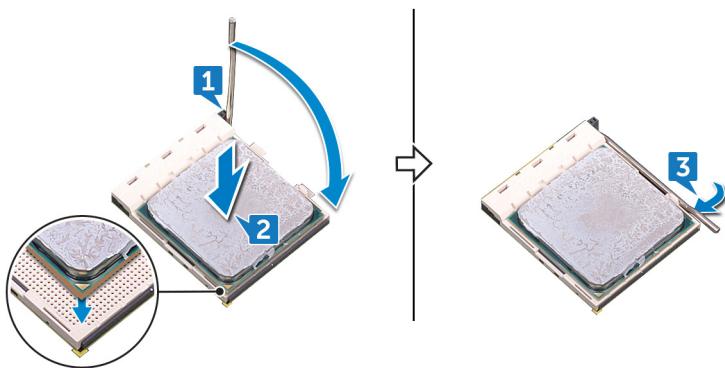
1. Ensure that the release lever on the processor socket is fully extended in the open position.

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, pivot the release-lever down and place it under the tab on the processor cover.



4. Place the computer in an upright position.

Post-requisites

1. Replace the [processor-cooling assembly](#) or [processor fan](#).
2. Replace the [right-side cover](#).

Removing the power-supply unit

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.

Topics:

- Prerequisites
- Procedure

Prerequisites

Remove the [right-side cover](#).

Procedure

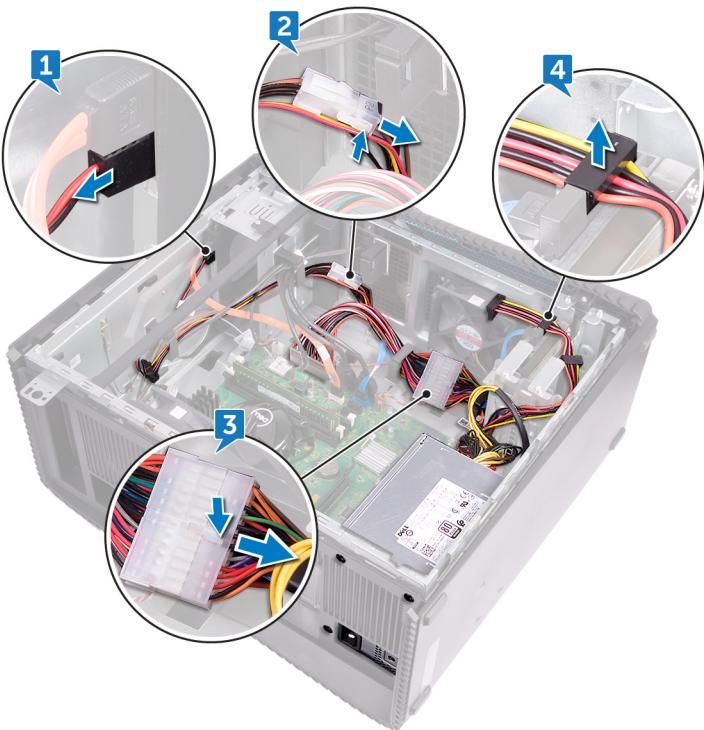
i **NOTE:** Note the routing of the cables while removing the power-supply unit so that you can replace them correctly.

i **NOTE:** Remove the cables from the routing guides on the chassis to avoid potential damage to the cables.

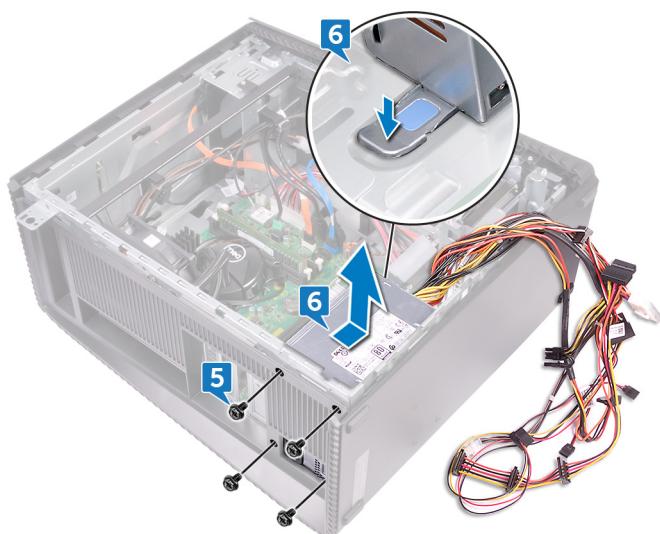
i **NOTE:** Disconnect the power cables from their extensions.

1. Lay the computer on the left side and disconnect the power cable from the optical drive.
2. Press the securing clip and disconnect the power-supply unit cable from the processor-power cable.
3. Press the securing clip and disconnect the power-supply unit cable from the system board.
4. Disconnect the power cables from the hard disks.

i **NOTE:** For computers with graphics card, that has power cable connected, disconnect the power cable from the graphics card.



5. Remove the four screws (6-32UNCx6.3) that secure the power-supply unit to the chassis.
6. Press the clamp and slide the power-supply unit towards the front of the chassis and lift the power-supply unit, along with the cables, off the chassis.



Replacing the power-supply unit

(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.

Topics:

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

Procedure

1. Place the power supply on the chassis.
2. Slide the power-supply unit towards the back of the chassis until it snaps into place.
3. Align the screw holes on the power-supply unit with the screw holes on the chassis.
4. Replace the four screws (6-32UNCx6.3) that secure the power-supply unit to the chassis.
5. Route the power-supply unit cables through the routing guides on the chassis.
6. Connect the power cables to their extensions.
7. Connect the processor-power cable and system-board power cable to the system board.
8. Connect the power cables to the hard drives and optical drive.

(i) **NOTE:** For computers with graphics card, connect the power cable to the graphics card, if applicable.

9. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the top 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:

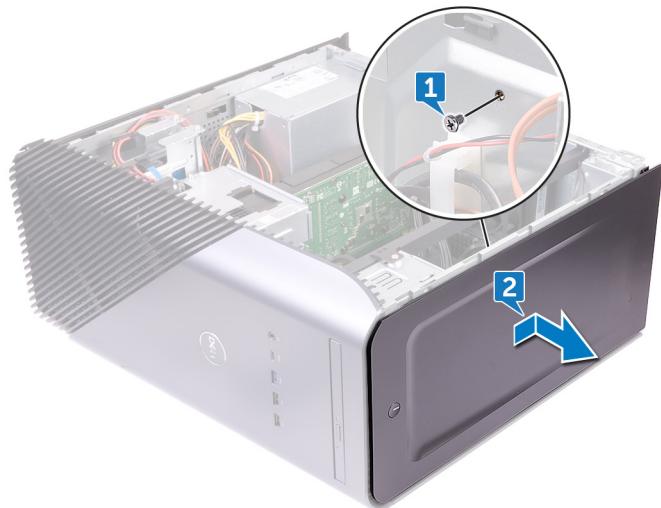
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and remove the screw (M3x5) that secures the top cover to the chassis.
2. Slide the top cover towards the backside of the chassis and remove the top cover from the chassis.



Replacing the top 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](#)
- [Post-requisites](#)

Procedure

1. Align the tabs on the top cover with the slots on the chassis.
2. Slide the top cover towards the front of the chassis and secure the top cover in place.
3. Replace the screw (M3x5) that secures the top cover to the chassis.
4. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the front bezel

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:

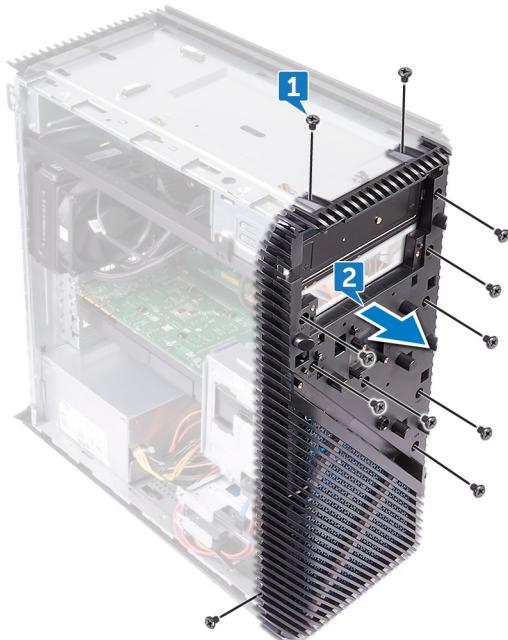
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [front cover](#).
3. Remove the [slim optical drive](#).
4. Remove the [front I/O panel](#).
5. Remove the [logo board](#).
6. Remove the [front-panel light board](#).
7. Remove the [light bar](#).
8. Remove the [top cover](#).

Procedure

1. Place the computer in the standing position and remove the 11 screws (M3x5) that secure the front bezel to the chassis.
2. Remove the front bezel from the chassis.



Replacing the front bezel

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 front bezel to the slots on the chassis.
2. Replace the 11 screws (M3x5) that secure the front bezel to the chassis and place the computer with the side-chassis facing up.

Post-requisites

1. Replace the [top cover](#).
2. Replace the [light bar](#).
3. Replace the [front-panel light board](#).
4. Replace the [logo board](#).
5. Replace the [front I/O panel](#).
6. Replace the [slim optical drive](#)
7. Replace the [front cover](#).
8. Replace the [right-side cover](#).

Removing the power-button 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

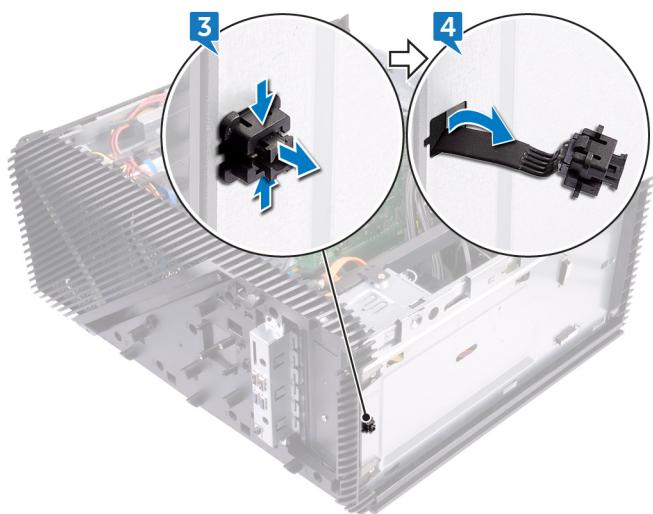
1. Remove the [right-side cover](#).
2. Remove the [front cover](#).
3. Remove the [slim optical drive](#)
4. Remove the [top cover](#).

Procedure

1. Lay the computer on the left side and disconnect the power-button cable from the system board.
2. Remove the power-button cable from the routing guides on the chassis.



3. Press the tab on the power-button board to release the module from the top panel.
4. Remove the power-button board along with its cable through the slot on the top panel.



Replacing the power-button 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. Route the power-button board cable through the slot on the top panel.
2. Align and snap the power-button module into the slot on the top panel.
3. Route the power-button board cable through the routing guides on the chassis.
4. Connect the power-button board cable to the system board.
5. Place the computer in an upright position.

Post-requisites

1. Replace the [top cover](#).
2. Replace the [slim optical drive](#).
3. Replace the [front cover](#).
4. Replace the [right-side cover](#).

Removing the antenna

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](#)

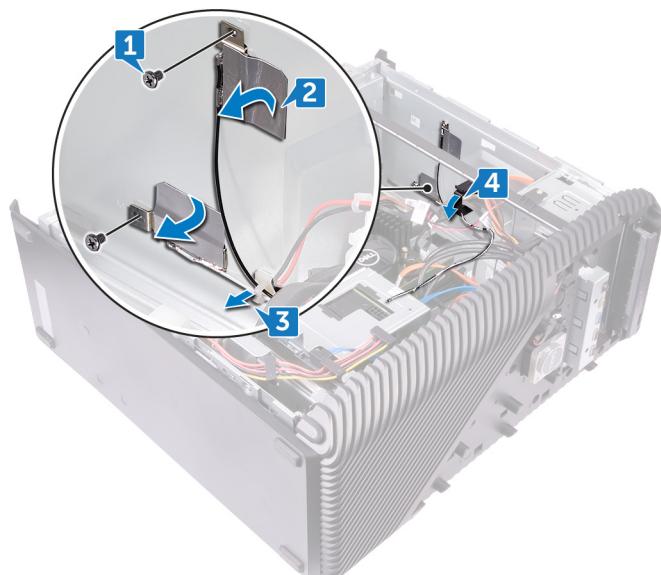
Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [wireless card](#).

Procedure

NOTE: Note the routing of white antenna cable and black antenna cable on the chassis while removing them so that you can replace them correctly.

1. Lay the computer on the left side and remove the screw (M3x5) that secures the antenna cables to the chassis.
2. Peel the tape that secures the antenna cables to the chassis.
3. Remove the screw (M3x5) and the tape that secures the antenna cables to the chassis.
4. Remove the antenna cables from the routing guide on the chassis.



Replacing the antenna

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.

Topics:

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

Procedure

1. Align the antenna cables to the slots on chassis and adhere the antenna cables to the chassis.
2. Replace the two screws (M3x5) that secures the antenna cables to the chassis.
3. Route the antenna cables through the routing guides on the chassis.
4. Place the computer in an upright position.

Post-requisites

1. Replace the [wireless card](#).
2. Replace the [right-side cover](#).

Removing the left-side 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:

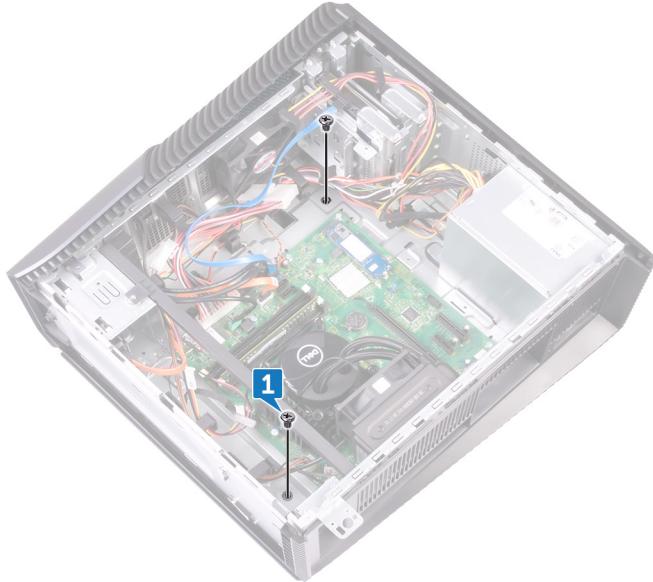
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and remove the two screws (M3x5) that secure the left-side cover to the chassis.



2. Carefully turn over the computer.
3. Slide and lift the left-side cover off the chassis.



Replacing the left-side cover

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.

Topics:

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

Procedure

1. Align the tabs on the left-side cover with the slots on the chassis and snap the left-side cover to lock it in place.
2. Replace the two screws (M3x5) that secure the left-side cover to the chassis.
3. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the bottom 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:

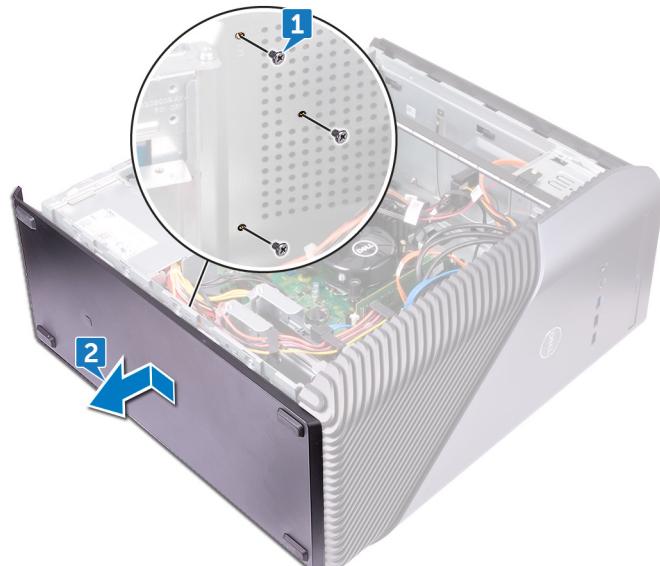
- [Prerequisites](#)
- [Procedure](#)

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Lay the computer on the left side and remove the three screws (M3x5) that secure the bottom cover to the chassis.
2. Slide and remove the bottom cover from the chassis.



Replacing the bottom cover

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.

Topics:

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

Procedure

1. Tilt the computer towards the front until the base is facing up.
2. Align the tabs on the bottom cover with the slots on the chassis and snap the bottom cover to lock it in place.
3. Replace the three screws (M3x5) that secure the bottom cover to the chassis.
4. Place the computer in an upright position.

Post-requisites

Replace the [right-side cover](#).

Removing the rear 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:

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

Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [power-supply unit](#).
3. Remove the [top cover](#).
4. Remove the [left-side cover](#).
5. Remove the [bottom cover](#).

Procedure

1. Remove the two screws (M3x5) that secures the top bracket to the chassis.
2. Lift the top bracket off the chassis.



3. Place the computer with the left side-chassis facing up and release the slots on the rear cover from the tabs on the chassis and remove the rear cover from the chassis.



Replacing the rear 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](#)
- [Post-requisites](#)

Procedure

1. Align the slots on the rear cover with the tabs on the chassis and snap the cover in place.
2. Align the screw holes on the top bracket with the screw holes on the chassis.
3. Replace the two screw (M3x5) that secures the top bracket to the chassis.
4. Place the computer in an upright position.

Post-requisites

1. Replace the [bottom cover](#).
2. Replace the [left-side cover](#).
3. Replace the [top cover](#).
4. Replace the [power-supply unit](#).
5. Replace the [right-side cover](#).

Removing the system board

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.

i **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.

i **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.

i **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](#)

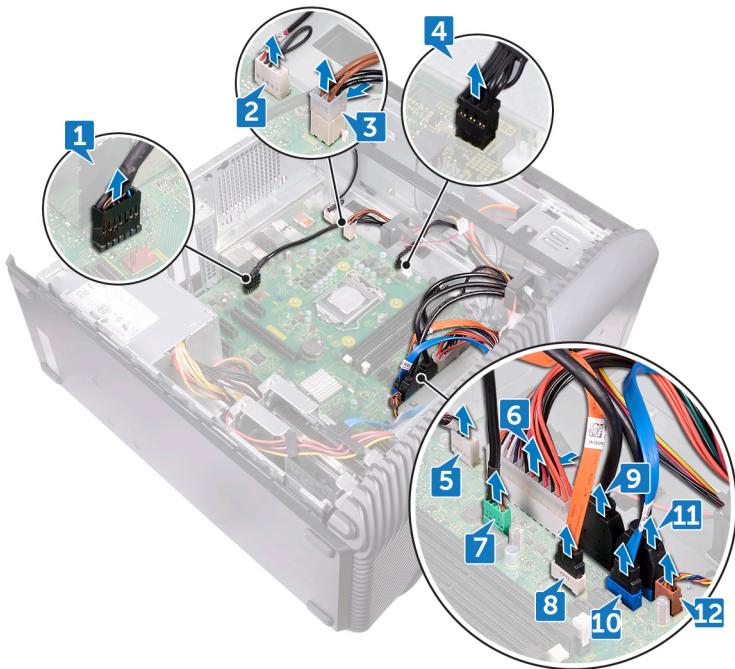
Prerequisites

1. Remove the [right-side cover](#).
2. Remove the [memory module](#).
3. Remove the [solid-state drive](#).
4. Remove the [wireless card](#).
5. Remove the [graphics card](#).
6. Remove the [VR heat sink](#).
7. Remove the [processor-cooling assembly](#) or [processor fan](#).
8. Remove the [processor](#).

Procedure

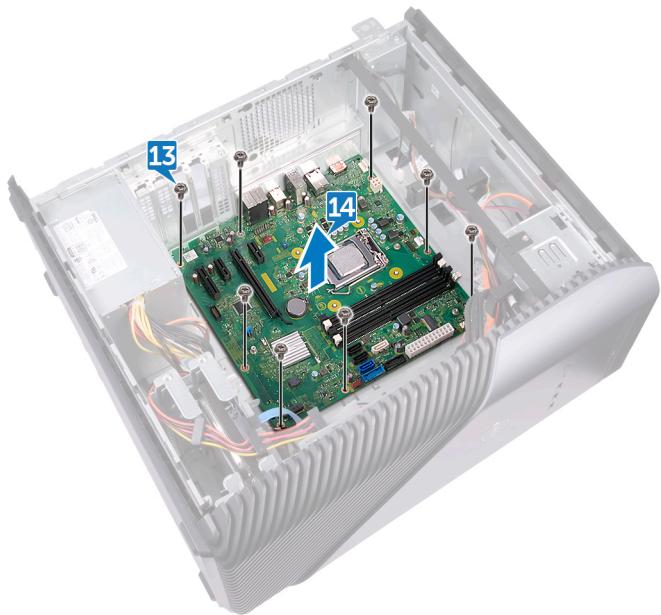
i **NOTE:** Note the routing of all cables while removing the system board so that you can replace them correctly.

1. Lay the computer on the left side and disconnect the front-audio cable from the system board.
2. Disconnect the light-bar cable from the system board.
3. Disconnect the processor-power cable from the system board.
4. Press the securing clip and disconnect the power-button board cable from the system board.
5. Disconnect the light-bar cable from the system board.
6. Press the securing clip and disconnect the power-supply unit cable from the system board.
7. Disconnect the USB 2.0 cable from the system board.
8. Disconnect the SATA1 cable from the system board.
9. Disconnect the USB 3.1 (Type-C) cable from the system board.
10. Disconnect the SATA0 cable from the system board.
11. Disconnect the USB 3.0 cable from the system board.
12. Disconnect the front chassis-fan cable from the system board.



13. Remove the eight screws (6-32UNCx6.3) that secure the system board to the chassis.

14. Lift the system board and remove it from the chassis.



Replacing the system board

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.

i 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.

i 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

1. Align the system board with the slots on the chassis and place the system board in position.
2. Replace the eight screws (6-32UNCx6.3) that secure the system board to the chassis.
3. Route the front chassis-fan cable, USB 3.0 cable, SATA0 cable, USB 3.1 (Type-C) cable, SATA1 cable, USB 2.0 cable, power-supply unit cable, light-bar cable, power-button board cable, processor-power cable, light-bar cable, front-audio cable through their routing guides and connect the cables to their respective connectors on the system board.
4. Place the computer in an upright position.

Post-requisites

1. Replace the [processor](#).
2. Replace the [processor-cooling assembly](#) or [processor fan](#).
3. Replace the [VR heat sink](#).
4. Replace the [graphics card](#).
5. Replace the [wireless card](#).
6. Replace the [solid-state drive](#).
7. Replace the [memory module](#).
8. Replace the [right-side cover](#).

BIOS setup program

Topics:

- BIOS overview
- Entering BIOS setup program
- Clearing Forgotten Passwords
- Clearing CMOS Settings

BIOS overview

The BIOS manages data flow between the computer's operating system and attached devices such as hard disk, video adapter, keyboard, mouse, and printer.

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.

(i) 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.

Clearing Forgotten Passwords

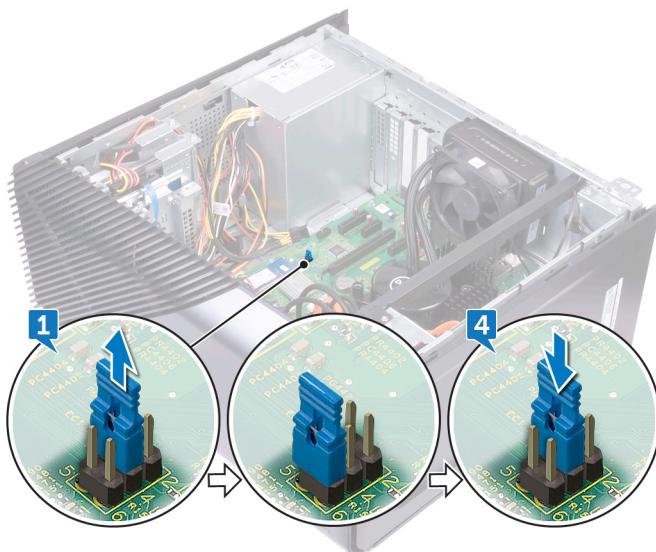
(i) NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

Remove the [right-side cover](#).

Procedure

1. Remove the jumper plug from the password jumper-pins.
2. Turn on your computer and wait until the operating system is completely loaded.
3. Shut down your computer.
4. Replace the jumper plug in its original location.



Post-requisites

Replace the right-side cover.

Clearing CMOS Settings

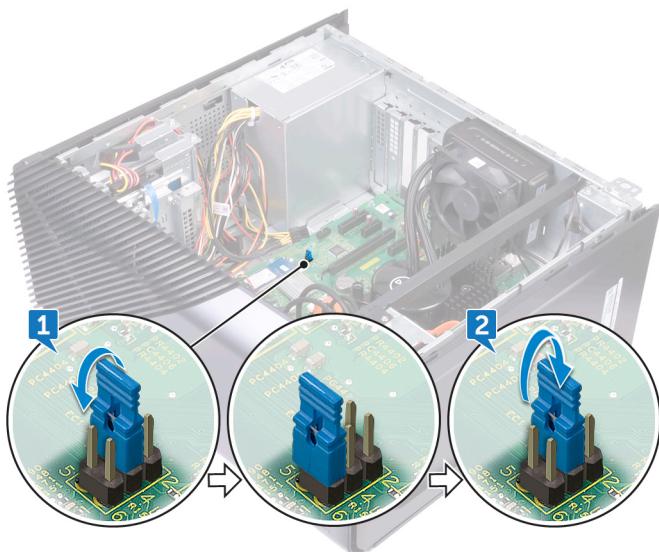
NOTE: Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best practices,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

Prerequisites

Remove the right-side cover.

Procedure

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



Post-requisites

Replace the right-side cover.

Flashing the BIOS

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

Follow these steps to flash the BIOS:

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

The following table provides the different LED states and what they indicate.

Table 2. LED states

Power LED state	Description
Off	<ul style="list-style-type: none"> • Hibernate or suspend to disk (S4) • Power is off (S5)
Solid Amber	Boot failure: This is a system fault error condition, including the power supply. Only the +5VSB rail on the power supply is working correctly.
Blinking Amber	Boot Failure: The computer is receiving electrical power, and power supplied by the power supply is normal. A device might be malfunctioning or incorrectly installed. Refer to the table below for Amber Blinking Pattern diagnostics suggestion and possible failures.
Solid White	System is in S0 state, the normal power state of a functioning machine.
Blinking White	System is in a low power state, either S1 or S3. This does not indicate a fault condition.

The computer POST (Power On Self Test) ensures that it meets the basic computer requirements and the hardware is working appropriately before the boot process begins. If the computer passes the POST, the computer continues to start in a normal mode. However, if the computer fails the POST, the computer emits a series of LED codes during the start-up. The system LED is integrated on the Power button.

The following table lists diagnostic light codes and describes what they mean.

Table 3. LED codes

Diagnostic light codes	Description
1	System board—system setup program (BIOS) is corrupted or Read-only Memory (ROM) has failed
2	No memory or Random-Access Memory (RAM) has been detected
3	System board—chipset has failed
4	Memory or Random-Access Memory (RAM) has failed
5	CMOS battery has failed
6	Graphics Processing Unit (GPU) has failed
7	Processor or Central Processing Unit (CPU) has failed
3,6	BIOS recovery image is not found
3,7	BIOS recovery image is found, but it is not valid

The following table lists the functions of jumper (JMP1) and indicates how to change the settings for each function.

Table 4. Jumper settings

Jumper	Function	Operation
JMP1	Service mode	1 - 2 Short: Disable
		1 - 2 Open: Default
	Password	3 - 4 Short: Default
		3 - 4 Open: Clear
	CMOS	5 - 6 Short: Clear
		5 - 6 open: Default

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 5. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell	
Tips	
Contact Support	In Windows search, type Contact Support , 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
Dell knowledge base articles for a variety of computer concerns.	<ol style="list-style-type: none"> 1. Go to https://www.dell.com/support/home/?app=knowledgebase. 2. Type the subject or keyword in the Search box. 3. Click Search to retrieve the related articles.
Learn and know the following information about your product: <ul style="list-style-type: none"> • Product specifications • Operating system • Setting up and using your product • Data backup • Troubleshooting and diagnostics • Factory and system restore • BIOS information 	See <i>Me and My Dell</i> at www.dell.com/support/manuals . To locate the <i>Me and My Dell</i> relevant to your product, identify your product through one of the following: <ul style="list-style-type: none"> • Select Detect Product. • Locate your product through the drop-down menu under View Products. • Enter the Service Tag number or Product ID in the search bar.

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.