

# XPS 8900

## Service Manual

Computer Model: XPS 8900  
Regulatory Model: D14M  
Regulatory Type: D14M002



# Notes, cautions, and warnings

---



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



**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.

---

**Copyright © 2015 Dell Inc. All rights reserved.** This product is protected by U.S. and international copyright and intellectual property laws. Dell™ and the Dell logo are trademarks of Dell Inc. in the United States and/or other jurisdictions. All other marks and names mentioned herein may be trademarks of their respective companies.

2015 - 08

Rev. A00

# Contents

<b>Before working inside your computer.....</b>	<b>11</b>
Before you begin .....	11
Safety instructions.....	11
Recommended tools.....	12
<b>After working inside your computer.....</b>	<b>14</b>
<b>Technical overview.....</b>	<b>15</b>
Inside view of your computer.....	15
System-board components.....	16
<b>Removing the computer cover .....</b>	<b>18</b>
Procedure.....	18
<b>Replacing the computer cover .....</b>	<b>19</b>
Procedure.....	19
Post-requisites.....	19
<b>Removing the memory modules.....</b>	<b>20</b>
Prerequisites.....	20
Procedure.....	20
<b>Replacing the memory modules.....</b>	<b>22</b>
Procedure.....	22
Post-requisites.....	23
<b>Removing the chassis fan.....</b>	<b>24</b>
Prerequisites.....	24
Procedure.....	24

<b>Replacing the chassis fan.....</b>	<b>26</b>
Procedure.....	26
Post-requisites.....	26
<b>Removing the front bezel .....</b>	<b>27</b>
Prerequisites.....	27
Procedure.....	27
<b>Replacing the front bezel.....</b>	<b>29</b>
Procedure.....	29
Post-requisites.....	29
<b>Removing the graphics-card bracket (optional).....</b>	<b>30</b>
Prerequisites.....	30
Procedure.....	30
<b>Replacing the graphics-card bracket (optional).....</b>	<b>32</b>
Procedure.....	32
Post-requisites.....	32
<b>Removing the graphics card (optional).....</b>	<b>33</b>
Prerequisites.....	33
Procedure.....	33
<b>Replacing the graphics card (optional).....</b>	<b>35</b>
Procedure.....	35
Post-requisites.....	35
<b>Removing the wireless card.....</b>	<b>36</b>
Prerequisites.....	36
Procedure.....	36

<b>Replacing the wireless card.....</b>	<b>38</b>
Procedure.....	38
Post-requisites.....	38
<b>Removing the solid-state drive.....</b>	<b>39</b>
Prerequisites.....	39
Procedure.....	39
<b>Replacing the solid-state drive.....</b>	<b>41</b>
Procedure.....	41
Post-requisites.....	42
<b>Removing the solid-state drive board.....</b>	<b>43</b>
Prerequisites.....	43
Procedure.....	43
<b>Replacing the solid-state drive board.....</b>	<b>45</b>
Procedure.....	45
Post-requisites.....	46
<b>Removing the primary hard-drive.....</b>	<b>47</b>
Prerequisites.....	47
Procedure.....	47
<b>Replacing the primary hard-drive .....</b>	<b>49</b>
Procedure.....	49
Post-requisites.....	49
<b>Removing the hard-drive cage.....</b>	<b>50</b>
Prerequisites.....	50
Procedure.....	50

<b>Replacing the hard-drive cage.....</b>	<b>52</b>
Procedure.....	52
Post-requisites.....	52
<b>Removing the secondary hard-drive (optional).....</b>	<b>53</b>
Prerequisites.....	53
Procedure.....	53
<b>Replacing the secondary hard-drive (optional).....</b>	<b>55</b>
Procedure.....	55
Post-requisites.....	55
<b>Installing the tertiary hard-drive (optional).....</b>	<b>56</b>
Prerequisites.....	56
Procedure.....	56
<b>Replacing the tertiary hard-drive.....</b>	<b>60</b>
Procedure.....	60
Post-requisites.....	60
<b>Removing the optical drive.....</b>	<b>61</b>
Prerequisites .....	61
Procedure.....	61
<b>Replacing the optical drive.....</b>	<b>63</b>
Procedure.....	63
Post-requisites.....	63
<b>Removing the top cover.....</b>	<b>64</b>
Prerequisites.....	64
Procedure.....	64

<b>Replacing the top cover.....</b>	<b>66</b>
Procedure.....	66
Post-requisites.....	66
<b>Removing the antenna.....</b>	<b>67</b>
Prerequisites.....	67
Procedure.....	68
<b>Replacing the antenna.....</b>	<b>70</b>
Procedure.....	70
Post-requisites.....	70
<b>Removing the media-card reader.....</b>	<b>71</b>
Prerequisites.....	71
Procedure.....	71
<b>Replacing the media-card reader.....</b>	<b>73</b>
Procedure.....	73
Post-requisites.....	73
<b>Removing the top I/O-panel.....</b>	<b>74</b>
Prerequisites.....	74
Procedure.....	74
<b>Replacing the top I/O-panel.....</b>	<b>76</b>
Procedure.....	76
Post-requisites.....	76
<b>Removing the front USB-panel.....</b>	<b>77</b>
Prerequisites.....	77
Procedure.....	77

<b>Replacing the front USB-panel.....</b>	<b>79</b>
Procedure.....	79
Post-requisites.....	79
<b>Removing the power-button module.....</b>	<b>80</b>
Prerequisites.....	80
Procedure.....	81
<b>Replacing the power-button module.....</b>	<b>83</b>
Procedure.....	83
Post-requisites.....	83
<b>Removing the processor fan and heat-sink assembly.....</b>	<b>84</b>
Prerequisites.....	84
Procedure.....	84
<b>Replacing the processor fan and heat-sink assembly.....</b>	<b>86</b>
Procedure.....	86
Post-requisites.....	86
<b>Removing the processor.....</b>	<b>87</b>
Prerequisites.....	87
Procedure.....	87
<b>Replacing the processor.....</b>	<b>89</b>
Procedure.....	89
Post-requisites.....	90
<b>Removing the coin-cell battery.....</b>	<b>91</b>
Prerequisites.....	91
Procedure.....	91




<b>Replacing the coin-cell battery.....</b>	<b>93</b>
Procedure.....	93
Post-requisites.....	93
<b>Removing the power-supply unit.....</b>	<b>94</b>
Prerequisites.....	94
Procedure.....	94
<b>Replacing the power-supply unit.....</b>	<b>96</b>
Procedure.....	96
Post-requisites.....	96
<b>Removing the system board.....</b>	<b>97</b>
Prerequisites.....	97
Procedure.....	97
<b>Replacing the system board.....</b>	<b>99</b>
Procedure.....	99
Post-requisites.....	99
Entering the Service Tag in the BIOS setup program.....	100
<b>BIOS setup program.....</b>	<b>101</b>
Overview.....	101
Entering BIOS setup program.....	101
Clearing forgotten passwords.....	101
Prerequisites.....	102
Procedure.....	102
Post-requisites.....	102
Clearing CMOS settings.....	103
Prerequisites.....	103
Procedure.....	103
Post-requisites.....	104
<b>Flashing the BIOS.....</b>	<b>105</b>




<b>Getting help and contacting Dell.....</b>	<b>106</b>
Self-help resources.....	106
Contacting Dell.....	107

# Before working inside your computer

---









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

## Before you begin

- 1 Save and close all open files and exit all open applications.
  - 2 Shut down your computer.
    - Windows 10: Click or tap **Start** →  **Power** → **Shut down**.
    - Windows 8.1: On the **Start** screen, click or tap the power icon  → **Shut down**.
    - Windows 7: Click or tap **Start** → **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 cables such as telephone cables, network cables and so on, from your computer.
  - 5 Disconnect all attached devices and peripherals, such as keyboard, mouse, monitor, and so on, from your computer.
  - 6 Remove any media card and optical disc from your computer, if applicable.
  - 7 After the computer is unplugged, press and hold the power button for 5 seconds to ground the system board.

## Safety instructions

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

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **WARNING:** Disconnect all power sources before opening the computer cover or panels. After you finish working inside the computer, replace all covers, panels, and screws before connecting to the power source.
-  **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](http://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:

- Philips screwdriver

- Flat-head screwdriver
- Plastic scribe

# 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, and cables you removed before working on your computer.
- 3 Replace any media cards, discs, and 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.

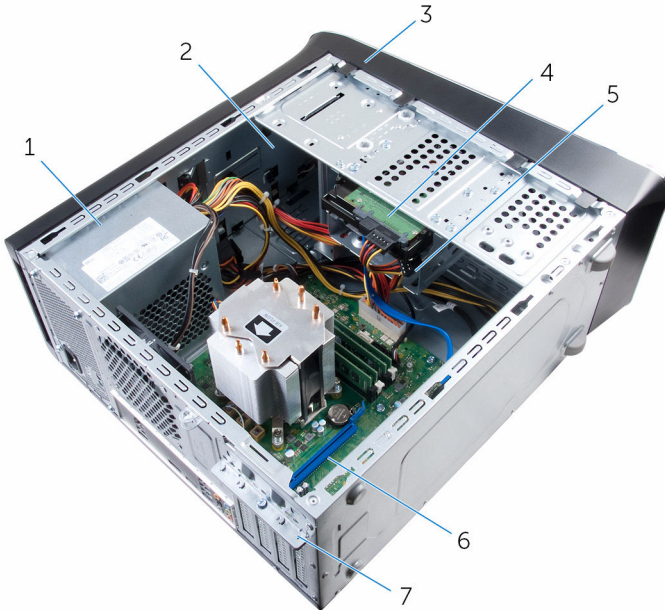
# Technical overview

---



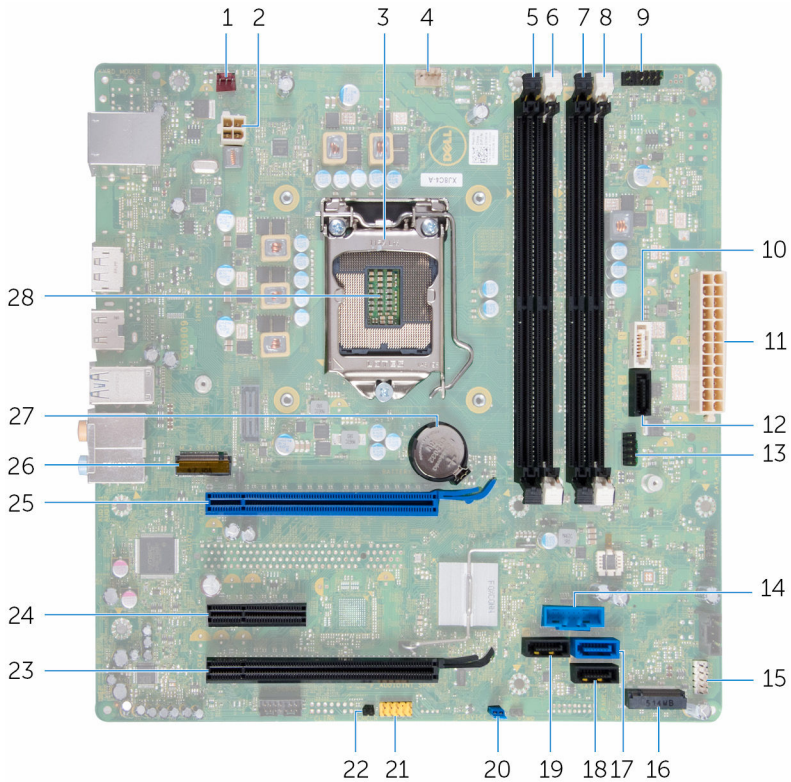
**WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Inside view of your computer



- |   |                        |   |                    |
|---|------------------------|---|--------------------|
| 1 | power supply           | 2 | optical drive      |
| 3 | front bezel            | 4 | primary hard-drive |
| 5 | secondary hard-drive   | 6 | graphics card      |
| 7 | card-retention bracket |   |                    |

# System-board components



- |    |                                   |    |                                      |
|----|-----------------------------------|----|--------------------------------------|
| 1  | chassis-fan connector (FAN_SYS2)  | 2  | power connector (ATX_CPU)            |
| 3  | processor cover                   | 4  | processor-fan connector (FAN_CPU)    |
| 5  | memory-module slot (DIMM3)        | 6  | memory-module slot (DIMM1)           |
| 7  | memory-module slot (DIMM4)        | 8  | memory-module slot (DIMM2)           |
| 9  | power-button connector (F_PANEL1) | 10 | SATA 6 Gbps drive connector (SATA 1) |
| 11 | main-power connector (ATX_SYS_2)  | 12 | SATA 6 Gbps drive connector (SATA 2) |
| 13 | Front2-USB connector (F_USB4)     | 14 | Front-USB connector (F_USB3)         |
| 15 | Front-USB connector (F_USB2)      | 16 | solid-state drive slot               |



17	SATA 6 Gbps drive connector (SATA 0)	18	SATA 6 Gbps drive connector (SATA 4)
19	SATA 6 Gbps drive connector (SATA 3)	20	password-reset jumper (PSWD)
21	front-panel audio connector (F_AUDIOINT_SPKR)	22	CMOS-reset jumper (CMCLR)
23	PCI-Express x16 card slot (SLOT4)	24	PCI-Express x1 card slot (SLOT3)
25	PCI-Express x16 card slot (SLOT1)	26	wireless-card slot (M.2_SLOT1)
27	battery socket (BATTERY)	28	processor socket

# Removing the computer cover

**⚠ WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Lay the computer on its side with the computer cover facing up.
- 2 Remove the thumbscrew that secures the computer cover to the chassis, using a screw driver if necessary.
- 3 Release the computer cover by sliding it away from the front of the computer.
- 4 Lift the cover away from the computer and set it aside.



1 thumbscrew

2 computer cover

# Replacing the computer cover

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure


- 1 Ensure that no tools or extra parts are left inside the computer.
- 2 Align the tabs at the bottom of the computer cover with the slots located along the edge of the chassis.
- 3 Press the computer cover down and slide it towards the front of the computer.
- 4 Replace the thumbscrew that secures the computer cover to the chassis.
- 5 Place the computer in an upright position.

## Post-requisites

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

# Removing the memory modules

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

Remove the [computer cover](#).

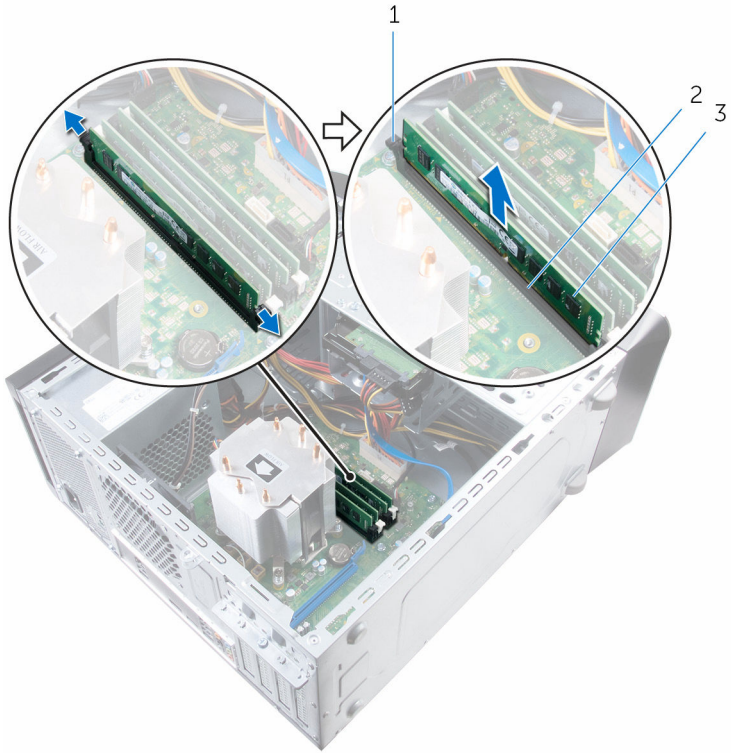
## Procedure

- 1 Locate the memory-module slot on the system board.  
For more information, see "[System-board components](#)".
- 2 Press out the securing clip at each end of the memory-module slot.



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

**3** Remove the memory module out of the memory-module slot.




- 1 securing clips (2)
- 3 memory module

- 2 memory-module slot

# Replacing the memory modules


---

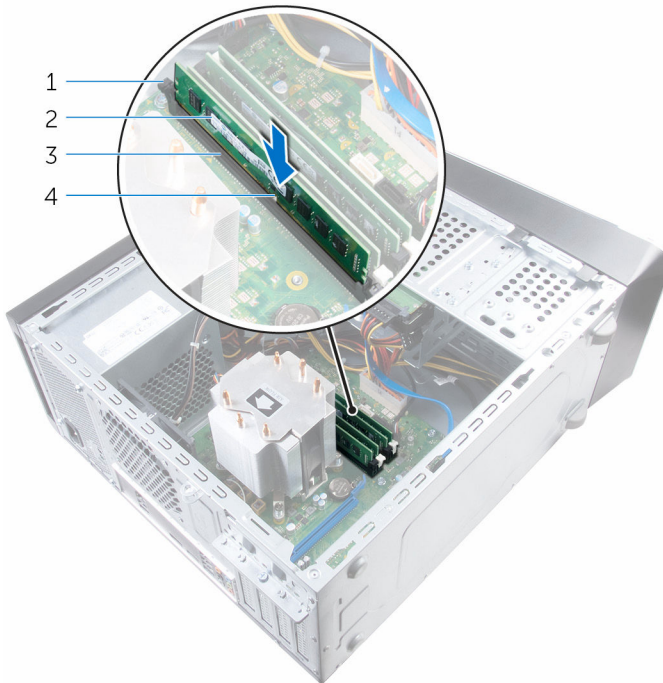
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Procedure

- 1 Align the notch on the memory module with the tab on the memory-module slot.

- 2 Insert the memory module into the memory-module slot, and press the memory module down until it snaps into position and the securing clips lock in place.

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



- 1 securing clips (2)
- 3 memory-module slot

- 2 memory module
- 4 notch

## Post-requisites

Replace the [computer cover](#).

# Removing the chassis fan

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

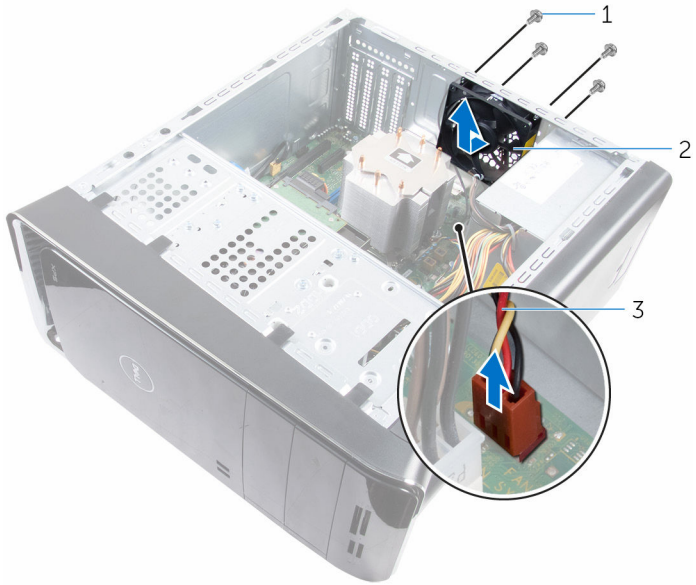
Remove the [computer cover](#).

## Procedure

- 1 Disconnect the chassis-fan cable from the system board.  
For more information, see "[System-board components](#)".
- 2 Remove the screws that secure the chassis fan to the chassis.



**3** Slide and lift the chassis fan off the computer.



1 screws (4)

2 chassis fan

3 chassis-fan cable

# Replacing the chassis fan

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Align the screw holes on the chassis fan with the screw holes on the chassis.
- 2 Replace the screws that secure the chassis fan to the chassis.
- 3 Connect the chassis-fan cable to the system board.

## Post-requisites

Replace the [computer cover](#).

# Removing the front bezel

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Place the computer in an upright position.
- 2 Release the front-bezel tabs sequentially from the top, one at a time by moving them away from the front panel.

- 3** Rotate and pull the front bezel away from the front of the computer to release the front-bezel clamps from the front-panel slots.



- |   |                        |   |             |
|---|------------------------|---|-------------|
| 1 | front-bezel tabs (4)   | 2 | front bezel |
| 3 | front-bezel clamps (3) | 4 | front panel |
| 5 | front-panel slots (3)  |   |             |

# Replacing the front bezel

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure


- 1 Align and insert the front-bezel clamps into the front-panel slots.
- 2 Rotate the front bezel towards the computer until the front-bezel tabs snap into place.

## Post-requisites

Replace the [computer cover](#).

# Removing the graphics-card bracket (optional)

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Remove the screws that secure the graphics-card bracket to the chassis.

- 2 Lift the graphics-card bracket off the chassis.



1 screws (2)

2 graphics-card bracket

# Replacing the graphics-card bracket (optional)

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Align the screw holes on the graphics-card bracket with the screw holes on the chassis.
- 2 Replace the screws that secure the graphics-card bracket to the chassis.


## Post-requisites

Replace the [computer cover](#).



# Removing the graphics card (optional)

---


 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [graphics-card bracket](#).


## Procedure

- 1 Remove the screw that secures the card-retention bracket to the chassis.
- 2 Lift and slide the card-retention bracket out of the chassis.

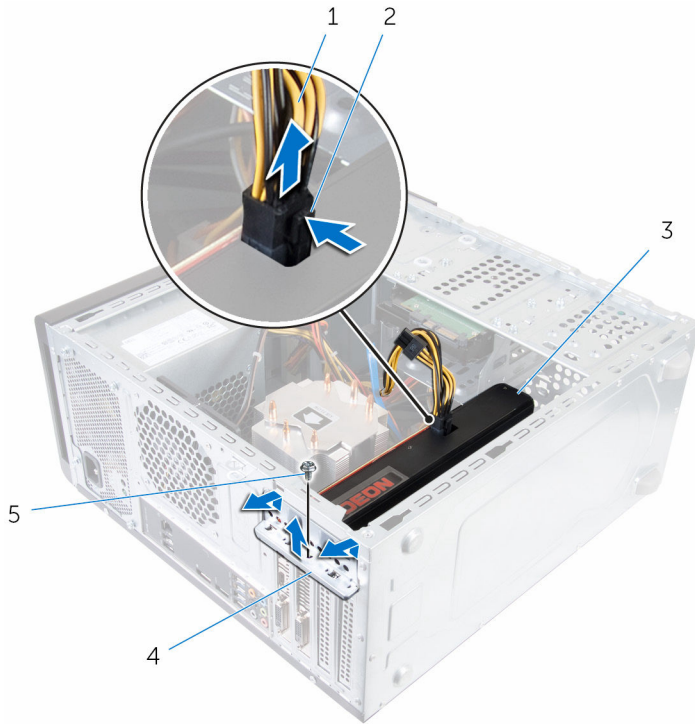
 **NOTE:** Your graphics card may have power-cable connectors.

- 3 Press the releasing clip on the power-cable connectors and disconnect the power cables from the graphics card, if applicable.
- 4 Locate the graphics card (SLOT1 or SLOT4) on the system board and make note of the graphics-card slot.

For more information, see "[System-board components](#)".

 **NOTE:** The appearance of the securing tab may be different on your computer.

- 5 Press and hold the securing tab on the card connector and then ease the card out of the card slot.



1 power cable

2 releasing clip


3 graphics card

4 card-retention bracket

5 screw

# Replacing the graphics card (optional)

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Locate the PCI-Express x16 card slot on the system board. For more information, see "[System-board components](#)".
- 2 Align the notch on the graphics card with the tab on the slot and snap the graphics card in place.
- 3 Connect the power cable to the graphics card, if applicable.
- 4 Replace the card-retention bracket, ensuring that:
  - a The guide clamp is aligned with the guide notch.
  - b The top of all cards and filler brackets are flush with the alignment bar.
  - c The notch on top of the card or filler bracket fits around the alignment guide.
- 5 Replace the screw that secures the card-retention bracket.

## Post-requisites

- 1 Replace the [graphics-card bracket](#).
- 2 Replace the [computer cover](#).

# Removing the wireless card

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

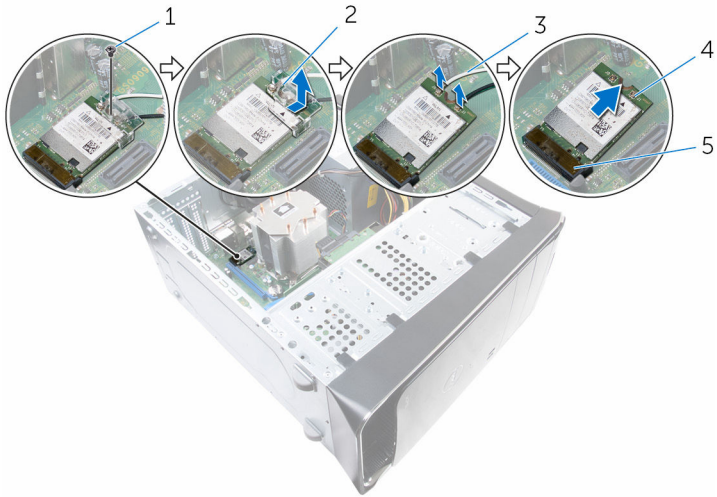
## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Locate the wireless-card slot on the system board.  
For more information, see "[System-board components](#)".
- 2 Remove the screw that secures the wireless card to the system board.
- 3 Slide and lift the wireless card off the system board.
- 4 Slide and remove the wireless-card bracket off the wireless card.


**5** Disconnect the antenna cables from the wireless card.




- |   |                                    |   |                       |
|---|------------------------------------|---|-----------------------|
| 1 | screw                              | 2 | wireless-card bracket |
| 3 | antenna cables (2)                 | 4 | wireless card         |
| 5 | wireless-card slot (M.<br>2_SLOT1) |   |                       |

# Replacing the wireless card

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

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

- 1 Connect the antenna cables to the wireless mini-card.  
The following table provides the antenna-cable color scheme for the wireless mini-card supported by your computer.

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




- 2 Slide the wireless-mini card bracket into the wireless card.
- 3 Align the notch on the wireless mini-card with the tab on the wireless mini-card connector.
- 4 Press the other end of the wireless mini-card down and replace the screw that secures the wireless mini-card to the system board.

## Post-requisites

Replace the [computer cover](#).

# Removing the solid-state drive

---

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **CAUTION:** Solid-state drives are fragile. Exercise care when handling the hard drive.
-  **CAUTION:** To avoid data loss, do not remove the solid-state drive while the computer is in sleep or on state.

## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Remove the screw that secures the solid-state drive to the system board.

2 Slide and lift the solid-state drive off the system board.



1 screw

3 solid-state drive

5 tab



2 solid-state drive slot

4 notch



# Replacing the solid-state drive

---

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **CAUTION:** Solid-state drives are fragile. Exercise care when handling the hard drive.

## Procedure

- 1 Align the notch on the solid-state drive with the tab on the system board.
- 2 Insert the solid-state drive at a 45-degree angle into the system board.

- 3** Press the other end of the solid-state drive down and replace the screw that secure the solid-state drive to the system board.




- |   |                        |   |       |
|---|------------------------|---|-------|
| 1 | notch                  | 2 | tab   |
| 3 | solid-state drive slot | 4 | screw |
| 5 | solid-state drive      |   |       |

## Post-requisites


Replace the [computer cover](#).

# Removing the solid-state drive board

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

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

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

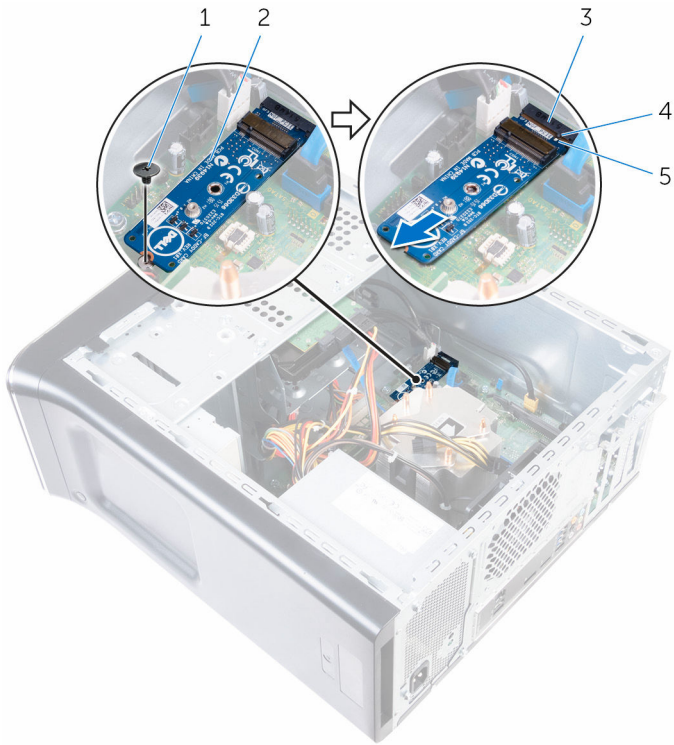
## Prerequisites

- 1 Remove the [solid-state drive](#).
- 2 Remove the [computer cover](#).

## Procedure

- 1 Remove the screw that secures the solid-state drive board to the system board.

2 Slide and lift the solid-state drive board off the system board.




- |   |                              |   |                         |
|---|------------------------------|---|-------------------------|
| 1 | screw                        | 2 | solid-state drive board |
| 3 | solid-state drive board slot | 4 | tab                     |
| 5 | notch                        |   |                         |

# Replacing the solid-state drive board

---

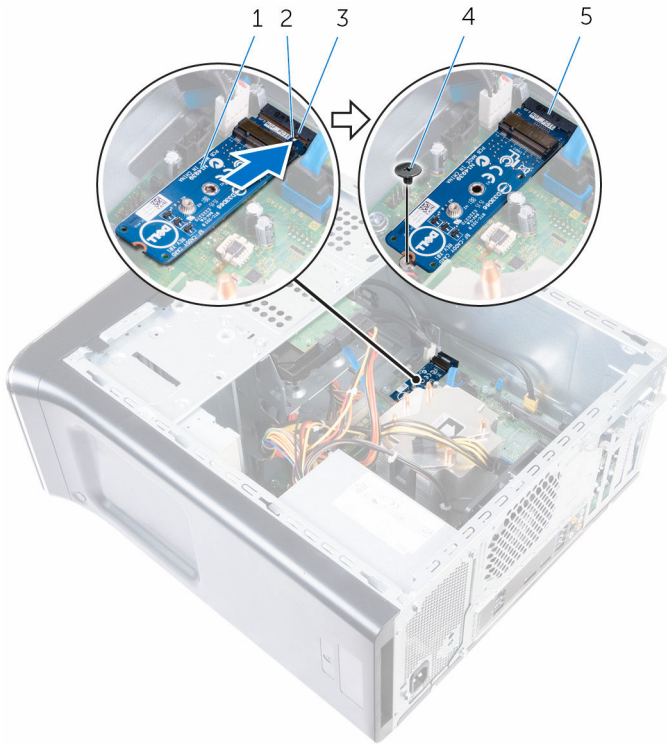
 **WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

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

## Procedure

- 1 Align the notch on the solid-state drive board with the tab on the system board.
- 2 Insert the solid-state drive board at a 45-degree angle into the system board.

- 3** Press the other end of the solid-state drive board down and replace the screw that secures the solid-state drive board to the system board.






- |   |                              |   |       |
|---|------------------------------|---|-------|
| 1 | solid-state drive board      | 2 | notch |
| 3 | tab                          | 4 | screw |
| 5 | solid-state drive board slot |   |       |

## Post-requisites

- 1 Replace the [solid-state drive](#).
- 2 Replace the [computer cover](#).

# Removing the primary hard-drive

---

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **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.

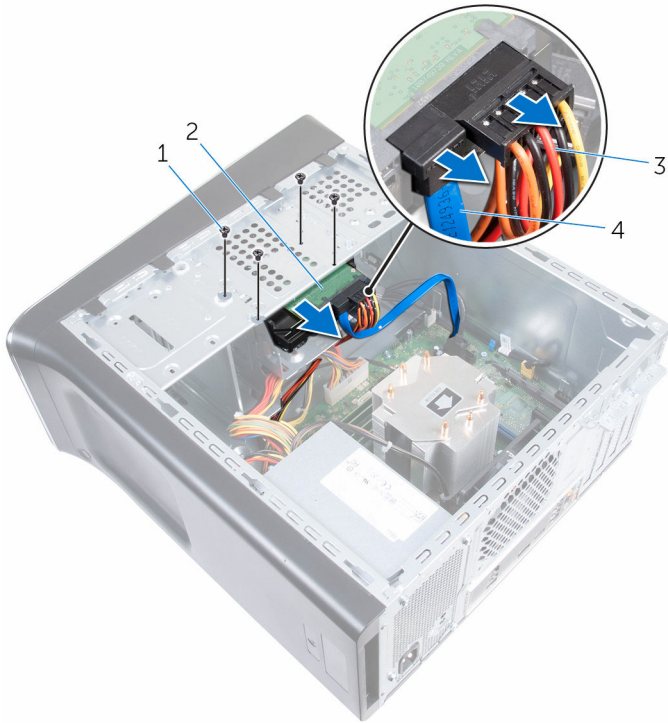
## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Disconnect the power and data cables from the primary hard-drive.
- 2 Remove the screws that secure the primary hard-drive to the chassis.

3 Slide the primary hard-drive out of the chassis.



1 screws (4)

2 primary hard-drive

3 power cable


4 data cable



# Replacing the primary hard-drive

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

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

## Procedure

- 1 Slide the primary hard-drive into the chassis.
- 2 Replace the screws that secure the primary hard-drive to the chassis.
- 3 Connect the power and data cables to the primary hard-drive.

## Post-requisites

Replace the [computer cover](#).

# Removing the hard-drive cage

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

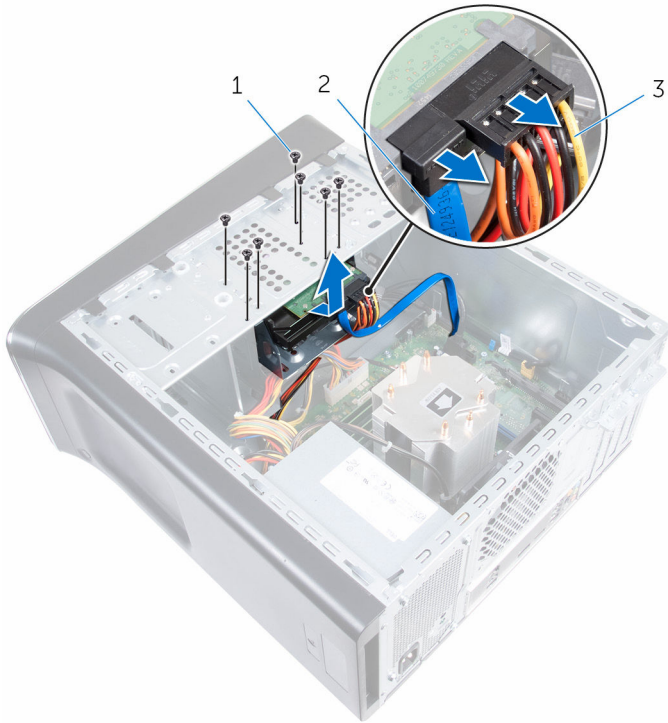
## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [primary-hard drive](#).

## Procedure

- 1 If applicable, disconnect the power and data cables from the secondary hard-drive.
- 2 Remove the screws that secure the hard-drive cage to the chassis.

**3** Slide and lift the hard-drive cage off the chassis.



1 screws (7)

2 data cable

3 power cable

# Replacing the hard-drive cage

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure




- 1 Align the tabs on the hard-drive cage with the slots on the chassis and slide the hard drive in place.
- 2 Replace the screws that secure the hard-drive cage to the chassis.
- 3 If applicable, connect the power and data cables to the secondary hard-drive.

## Post-requisites

- 1 Replace the [primary hard-drive](#).
- 2 Replace the [computer cover](#).

# Removing the secondary hard-drive (optional)

---

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **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.

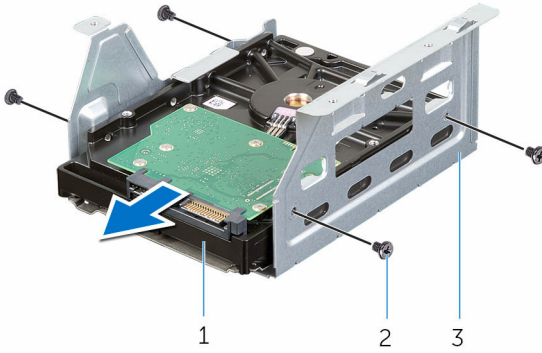
## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [primary hard-drive](#).
- 3 Remove the [hard-drive cage](#).

## Procedure

- 1 Remove the screws that secure the secondary hard-drive to the hard-drive cage.

2 Slide the secondary hard-drive out of the hard-drive cage.




1 secondary hard-drive

2 screws (4)

3 hard-drive cage

# Replacing the secondary hard-drive (optional)

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

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

## Procedure




- 1 Slide the secondary hard-drive into the hard-drive cage.
- 2 Align the screw holes on the secondary hard-drive with the screw holes on the hard-drive cage.
- 3 Replace the screws that secure the secondary hard-drive to the hard-drive cage.

## Post-requisites

- 1 Replace the [hard-drive cage](#).
- 2 Replace the [primary hard-drive](#).
- 3 Replace the [computer cover](#).

# Installing the tertiary hard-drive (optional)

---

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **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.

## Prerequisites

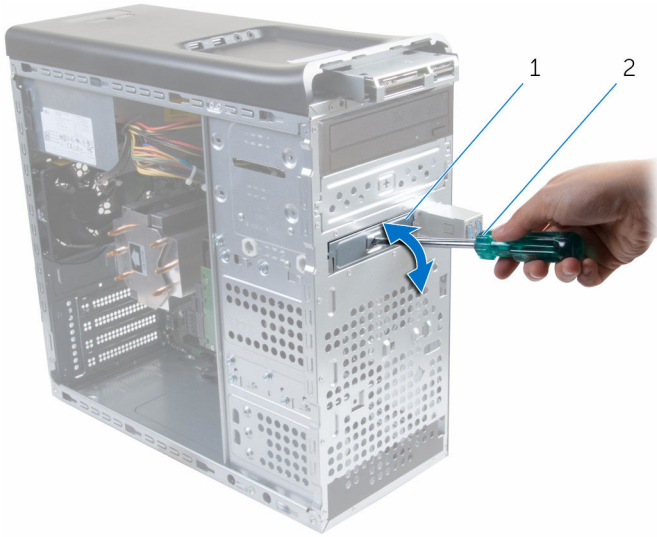
- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).

## Procedure

- 1 Insert a screw driver and twist it to remove the break-away metal plate.



2 Pull the break-away metal plate away from the chassis.



1 metal plate

2 screw driver

- 3 Gently slide the tertiary hard-drive into the hard-drive bay through the front of the computer.



1 tertiary hard-drive

- 4 Replace the screws that secure the tertiary hard-drive to the chassis.

5 Connect the power and data cables to the tertiary hard-drive.




1 power cable

2 data cable

3 tertiary hard-drive

# Replacing the tertiary hard-drive

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

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

## Procedure

- 1 Slide the tertiary hard-drive into the hard-drive bay through the front of the computer.
- 2 Replace the screws that secure the tertiary hard-drive to the chassis.
- 3 Connect the power and data cables to the tertiary hard-drive.

## Post-requisites

- 1 Replace the [front bezel](#).
- 2 Replace the [computer cover](#).

# Removing the optical drive

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).


## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).

## Procedure

- 1 Lay the chassis on the side.
- 2 Disconnect the power and data cables from the optical drive.
- 3 Remove the screws that secure the optical drive to the chassis.

4 Push and slide out the optical drive through the front of the computer.

 **NOTE:** Repeat step 1 to step 3 to remove the secondary optical-drive, if applicable.



- 1 power cable
- 3 screws (2)
- 5 chassis

- 2 data cable
- 4 optical drive

# Replacing the optical drive

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the optical drive into the optical-drive bay through the front of the computer.
- 2 Align the screw holes on the optical drive with the screw holes on the chassis.
- 3 Replace the screws that secure the optical drive to the chassis.
- 4 Connect the power and data cables to the optical drive.



**NOTE:** Repeat step 1 to step 4 to replace the secondary optical-drive, if applicable.

## Post-requisites

- 1 Replace the [front bezel](#).
- 2 Replace the [computer cover](#).

# Removing the top cover

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

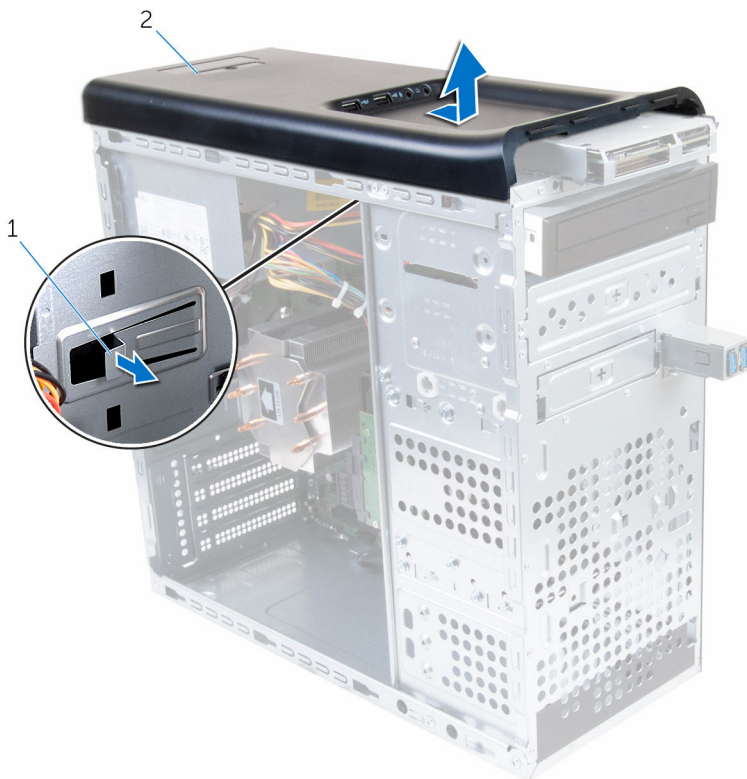
## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).

## Procedure

Pulling the retention clip, slide and lift the top cover away from top panel.





1 retention clip

2 top cover

# Replacing the top cover

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Align the tabs on the top cover with the slots on the top panel.
- 2 Press and slide the top cover towards the back of the computer until it clicks into place.

## Post-requisites

- 1 Replace the [front bezel](#).
- 2 Replace the [computer cover](#).

# Removing the antenna

---



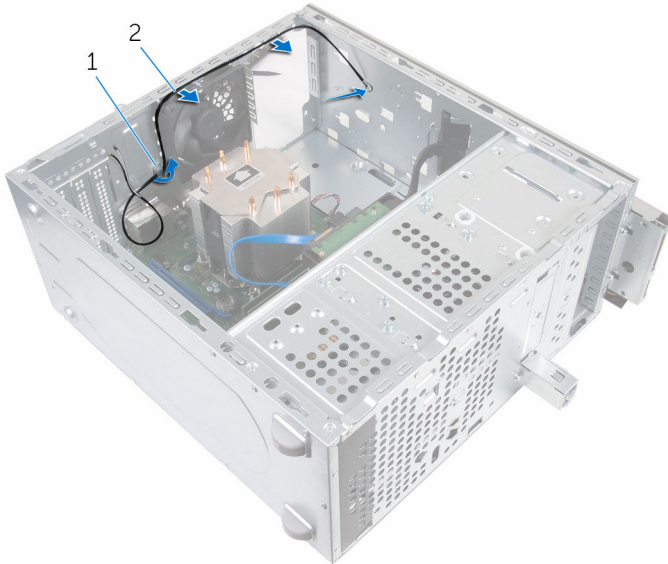
**WARNING:** Before working inside your computer, read the safety information that shipped with your computer and follow the steps in [Before working inside your computer](#). After working inside your computer, follow the instructions in [After working inside your computer](#). For more safety best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

## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [top cover](#).
- 3 Remove the [front bezel](#).
- 4 Remove the [wireless card](#).

# Procedure

- 1 Note the antenna-cable routing and remove the antenna cables from the routing guides on the chassis.

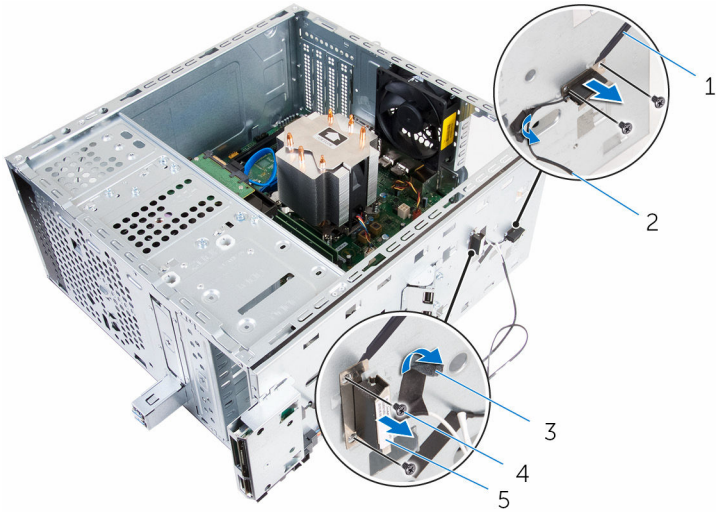


1 antenna cable

2 routing guide

- 2 Remove the screws that secure the antenna to the chassis
- 3 Peel off the tapes that secure the antenna cables to the chassis.

4 Using a plastic scribe, pry the antenna off the chassis.



1 plastic scribe

3 tape

5 antenna

2 antenna cable

4 screws (4)

# Replacing the antenna

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Adhere the antenna to the chassis.
- 2 Align the screw holes on the antenna with the screw holes on the chassis.
- 3 Replace the screws that secure the antenna to the chassis.
- 4 Route the antenna cables through the routing guides on the chassis.
- 5 Secure the antenna cables with the tape.

## Post-requisites

- 1 Replace the [wireless card](#).
- 2 Replace the [front bezel](#).
- 3 Replace the [top cover](#).
- 4 Replace the [computer cover](#).

# Removing the media-card reader

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

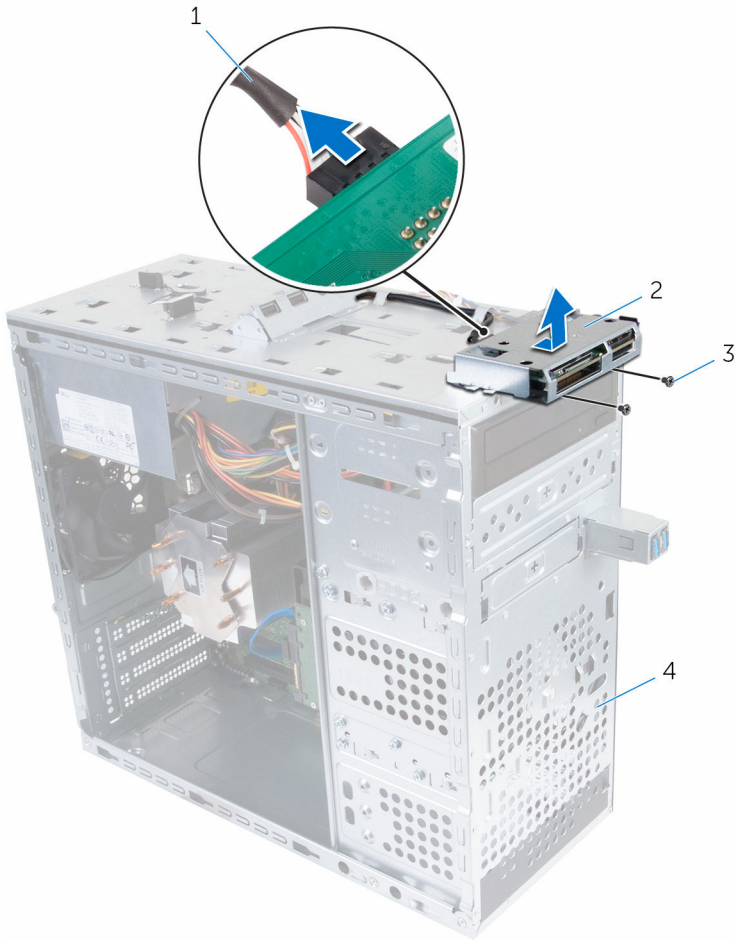
## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).
- 3 Remove the [top cover](#).

## Procedure

- 1 Remove the screws that secure the media-card reader to the front panel.
- 2 Disconnect the media-card reader cable from the media-card reader.

**3** Slide and lift the media-card reader off the top panel.



1 media-card reader cable

2 media-card reader


3 screws (2)

4 front panel



# Replacing the media-card reader

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the tabs on the media-card reader into the slots on the top panel.
- 2 Replace the screws that secure the media-card reader to the front panel.
- 3 Connect the media-card reader cable to the media-card reader.

## Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [front bezel](#).
- 3 Replace the [computer cover](#).

# Removing the top I/O-panel

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

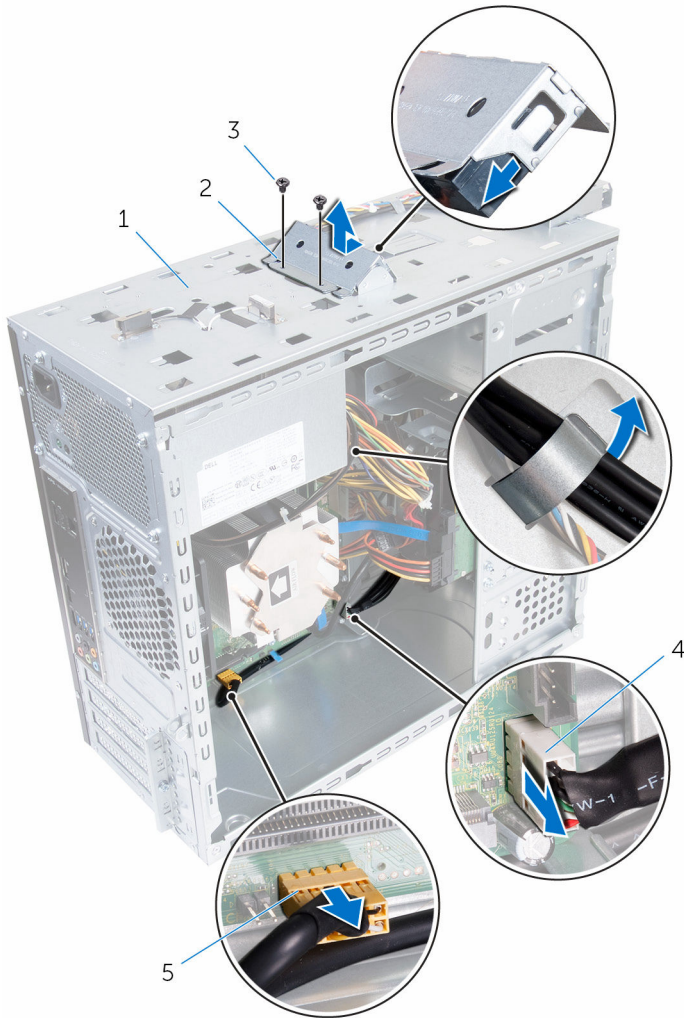
## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).
- 3 Remove the [top cover](#).

## Procedure

- 1 Disconnect the top I/O-panel cables from the system board. For more information, see "[System-board components](#)".
- 2 Note the I/O-panel cables routing and remove them from the routing guides on the chassis.
- 3 Remove the screws that secure the top I/O-panel to the top panel.

- 4 Slide and lift the top I/O-panel from the top panel.



- |   |   |   |                              |
|---|---|---|------------------------------|
| 1 | top panel                               | 2 | top I/O-panel                |
| 3 | screws (2)                              | 4 | USB-cable connector (F_USB3) |
| 5 | audio-cable connector (F_AUDIOINT_SPKR) |   |                              |

# Replacing the top I/O-panel

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure


- 1 Align the screw holes on the top I/O-panel with the screw holes on the top panel.
- 2 Replace the screws that secure the top I/O-panel to the top panel.
- 3 Route the I/O-panel cables through the routing guides on the chassis.
- 4 Connect the top I/O-panel cables to the system board. For more information, see "[System-board components](#)".

## Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [front bezel](#).
- 3 Replace the [computer cover](#).

# Removing the front USB-panel


---


 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).

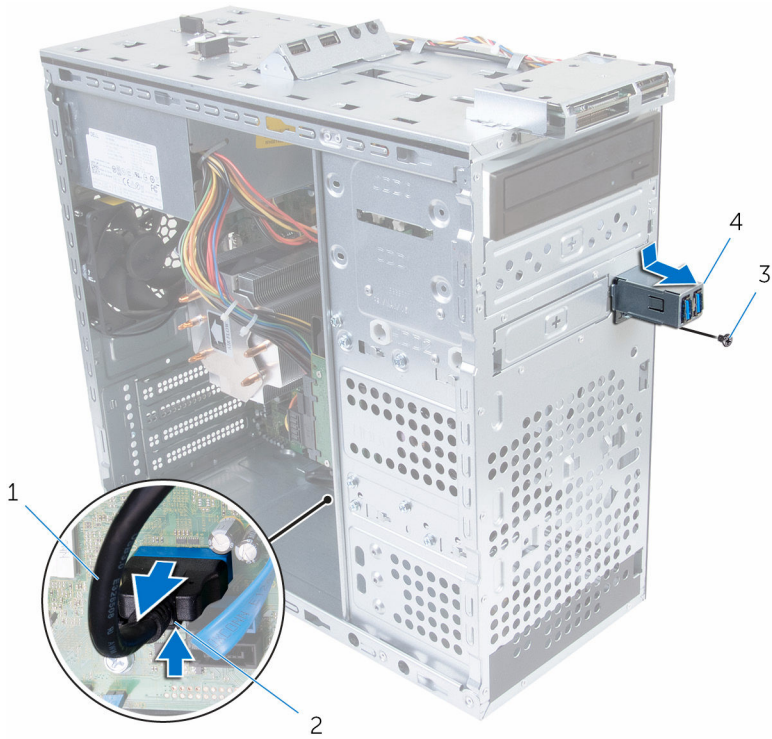
## Procedure

 **CAUTION:** Be extremely careful while sliding the front USB-panel out of the computer. Carelessness may result in damage to the cable connectors and the cable routing clips.

 **NOTE:** Note the routing of all cables as you remove them so that you can re-route them correctly after you replace the front USB-panel.

- 1 Press the securing clip and disconnect the front USB-panel cables from the system board. For more information, see "[System-board components](#)".
- 2 Remove the screw that secures the front USB-panel to the front panel.
- 3 Slide the front USB-panel down and pull it away from the chassis.

4 Remove the USB-panel cable from the slot on the chassis.



1 front USB-panel cable


3 screw

2 securing clip

4 front USB-panel

# Replacing the front USB-panel

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the front USB-panel cable into the slot on the chassis.
- 2 Slide the front USB-panel tabs into the front USB-panel slot.
- 3 Replace the screw that secures the front USB-panel to the front panel.
- 4 Connect the front USB-panel cables to the system board.  
For more information, see "[System-board components](#)".

## Post-requisites

- 1 Replace the [front bezel](#).
- 2 Replace the [computer cover](#).

# Removing the power-button module

---


 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [front bezel](#).
- 3 Remove the [top cover](#).



# Procedure

 **NOTE:** Note the routing of the cable as you remove it so that you can reroute it correctly after you replace the power-button module.

- 1 Disconnect the power-button module cable from the system board.  
For more information, see "[System-board components](#)".



1 power-button module

2 power-button module cable

- 2 Note the power-button module cable routing and remove the cable from the routing guides on the chassis.

- 3** Press the tabs on the power-button module and lift the power-button module from the top panel.




1 power-button module

2 power-button module tabs (4)

3 power-button module cable

# Replacing the power-button module

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure




- 1 Push the power-button module tabs into the slots on the front panel until the module snaps in place.
- 2 Route the power-button module cable through the routing guides on the chassis.
- 3 Connect the power-button module cable to the system board.  
For more information, see "[System-board components](#)".

## Post-requisites

- 1 Replace the [top cover](#).
- 2 Replace the [front bezel](#).
- 3 Replace the [computer cover](#).

# Removing the processor fan and heat-sink assembly

---

-  **WARNING:** 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](http://www.dell.com/regulatory_compliance).
-  **WARNING:** 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.

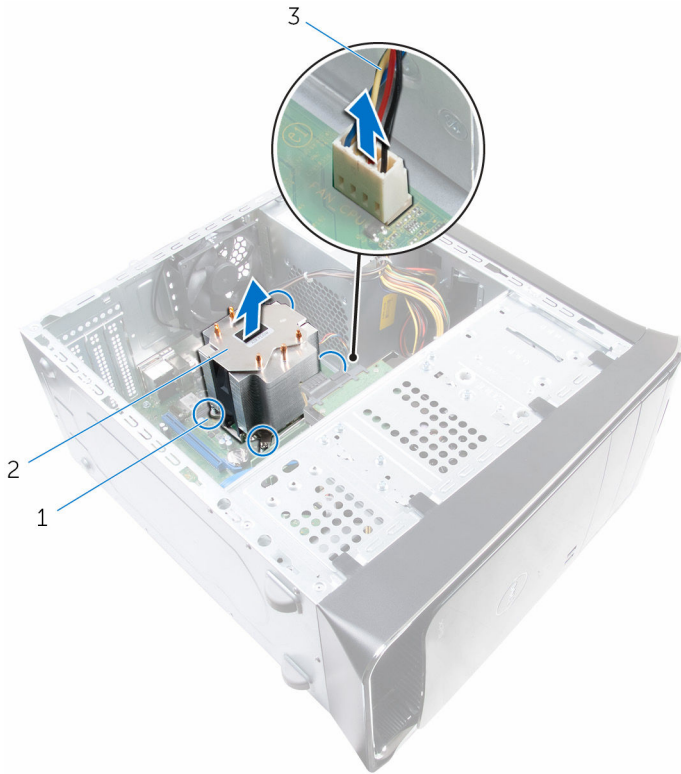
## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Disconnect the processor-fan cable from the system board.  
For more information, see "[System-board components](#)".
- 2 Loosen the captive screws that secure the processor fan and heat-sink assembly to the system board.

**3** Lift the processor fan and heat-sink assembly off the system board.




1 captive screws (4)

2 processor fan and heat-sink assembly


3 processor-fan cable


# Replacing the processor fan and heat-sink assembly

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

 **NOTE:** The original thermal grease can be reused if the original processor and heat-sink assembly are reinstalled together.

 **CAUTION:** If either the processor or the heat-sink assembly is replaced, use the thermal grease provided in the kit to make sure that thermal conductivity is achieved.

- 1 Place the processor fan and heat-sink assembly over the processor.
- 2 Align the captive screws on the processor fan heat-sink assembly with the screw holes on the system board.
- 3 Tighten the captive screws that secure the processor fan and heat-sink assembly to the system board.
- 4 Connect the processor-fan cable to the system board.  
For more information, see "[System-board components](#)".

## Post-requisites

Replace the [computer cover](#).

# Removing the processor

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

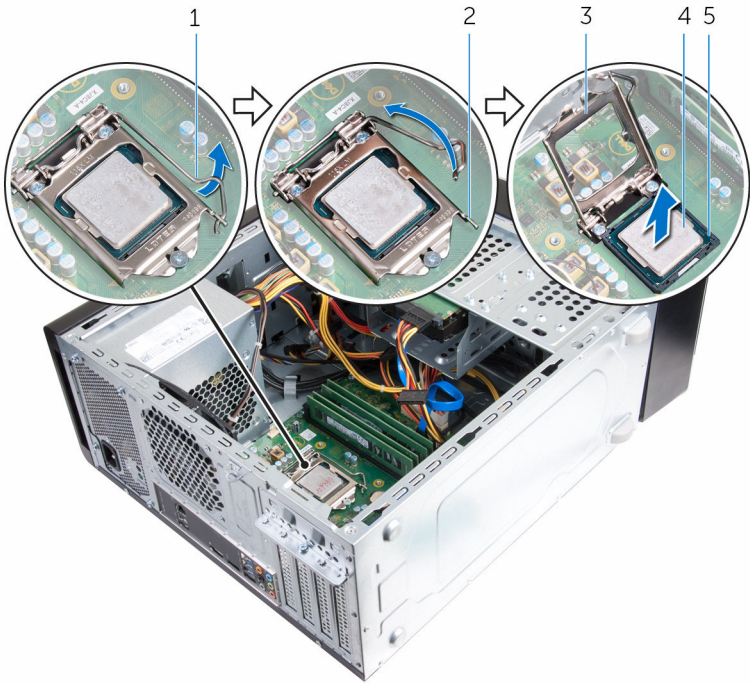
## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [processor fan and heat sink assembly](#).

## Procedure

- 1 Press the release-lever down and then pull it outwards to release it from the securing tab.
- 2 Extend the release-lever completely to open the processor cover.

3 Gently lift the processor and remove it from the processor socket.



1 release lever

2 securing tab

3 processor cover


4 processor


5 socket




# Replacing the processor

---


 **WARNING:** 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](http://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.

## Procedure

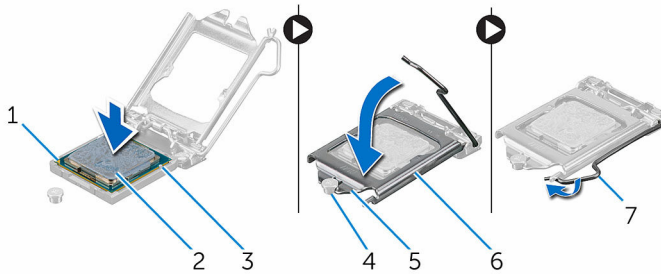
 **NOTE:** A new processor ships with a thermal pad in the package. In some cases, the processor may ship with the thermal pad attached to it.

- 1 Ensure that the release lever on the processor socket is fully extended in the open position.
- 2 Align the pin-1 corner on the processor with the pin-1 corner on the processor socket, and then place the processor in the processor socket.

 **NOTE:** 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.

- 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.





- |   |                           |   |                 |
|---|---------------------------|---|-----------------|
| 1 | processor pin-1 indicator | 2 | processor       |
| 3 | alignment tabs (2)        | 4 | alignment post  |
| 5 | processor-cover notch     | 6 | processor cover |
| 7 | release lever             |   |                 |

## Post-requisites

- 1 Replace the [processor fan and heat-sink assembly](#).
- 2 Replace the [computer cover](#).

# Removing the coin-cell battery

---

-  **WARNING:** 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](http://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.

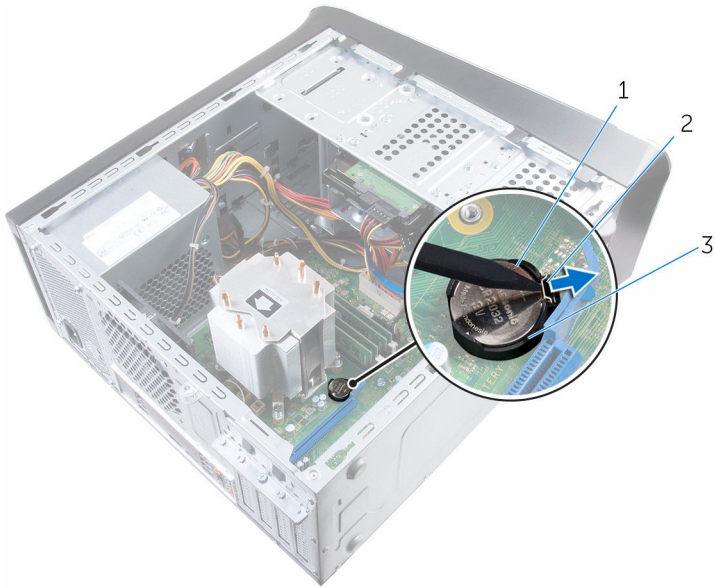
## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Locate the battery socket.  
For more information, see "[System-board components](#)".
- 2 Press the battery-release lever away from the coin-cell battery until the coin-cell battery pops up.

**3** Lift the coin-cell battery out of its socket.



- 1 coin-cell battery
- 3 battery socket

2 securing clip

# Replacing the coin-cell battery

---



**WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure


Insert a new coin-cell battery (CR2032) into the battery socket with the positive side facing up, and snap the battery into place.

## Post-requisites

Replace the [computer cover](#).

# Removing the power-supply unit

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

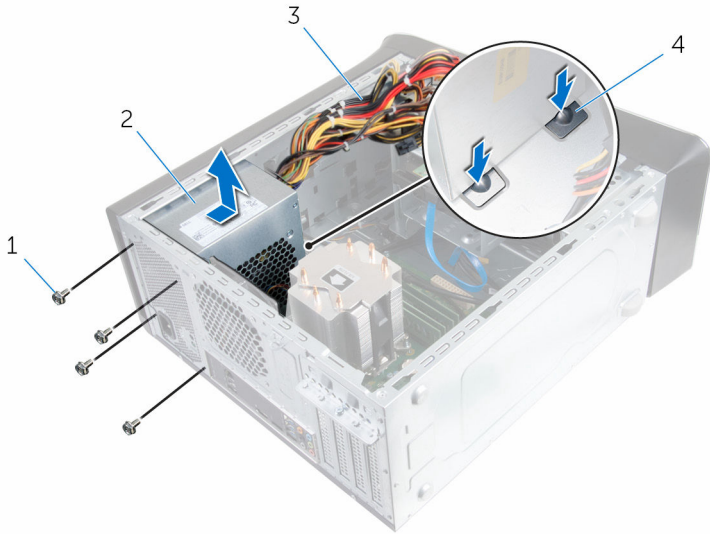
## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Disconnect the DC power cables from the system board, hard drives, and optical drives.  
For more information, see "[System-board components](#)".
- 2 Remove the screws that secure the power-supply unit to the chassis.
- 3 While pressing and holding the power-supply clamps, slide the power-supply unit to release the power-supply unit from the power-supply clamps.

4 Lift the power-supply unit off the chassis.



1 screws (4)

2 power-supply unit

3 DC power cables

4 power-supply clamps (2)

# Replacing the power-supply unit

---

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Procedure

- 1 Slide the power supply towards the back of the chassis until it is secured by the power-supply clamps.
- 2 Align the screw holes on the power-supply unit with the screw holes on the chassis.
- 3 Replace the screws that secure the power-supply unit to the chassis.
- 4 Connect the DC power cables to the system board, hard drives, and optical drives.

For more information, see "[System-board components](#)".


## Post-requisites


Replace the [computer cover](#).





# Removing the system board

---

 **WARNING:** 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](http://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 desired 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.

## Prerequisites

- 1 Remove the [computer cover](#).
- 2 Remove the [wireless card](#).
- 3 Remove the [memory modules](#).
- 4 Remove the [graphics-card bracket](#).
- 5 Remove the [graphics card](#).
- 6 Remove the [processor fan and heat sink assembly](#).
- 7 Remove the [processor](#).
- 8 Disconnect all cables connected to the system board.  
For more information, see "[System-board components](#)".

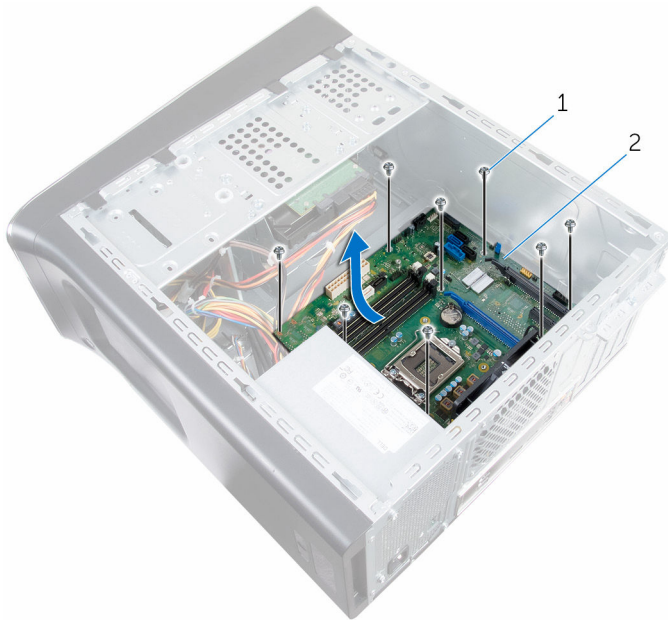
## Procedure

 **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:** Before disconnecting the cables from the system board, note the location of the connectors, so that you can reconnect them correctly after you replace the system board.

- 1 Disconnect all the cables connected to the system board.  
For more information, see "[System-board components](#)".
- 2 Make note of the cable routing and remove the cables from the routing guides.
- 3 Remove the screws that secure the system board to the chassis.
- 4 Lift the system board at an angle and remove it from the computer.



1 screws (8)

2 system board

# Replacing the system board

---



**WARNING:** 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](http://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 desired changes again after you replace the system board.

## Procedure

- 1 Slide the ports on the system board into the slots on the chassis and align the screw holes on the system board with the screw holes on the chassis.
- 2 Replace the screws that secure the system board to the chassis.
- 3 Route and connect the cables that you disconnected from the system board.

For more information, see "[System-board components](#)."

## Post-requisites

- 1 Replacing the [processor](#).
- 2 Replacing the [processor fan and heat sink assembly](#).
- 3 Remove the [graphics card](#).
- 4 Replacing the [memory modules](#).
- 5 Replacing the [wireless card](#).
- 6 Replacing the [computer cover](#).


# Entering the Service Tag in the BIOS setup program


- 1 Turn on the computer.
- 2 Press F2 when the DELL logo is displayed to enter the BIOS setup program.
- 3 Navigate to the **Main** tab and enter the Service Tag in the **Service Tag Input** field.

# BIOS setup program

---

## 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 BIOS setup program to:


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

## 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 has 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 operating system's desktop. Then, turn off your computer and try again.

## Clearing forgotten passwords


 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

## Prerequisites

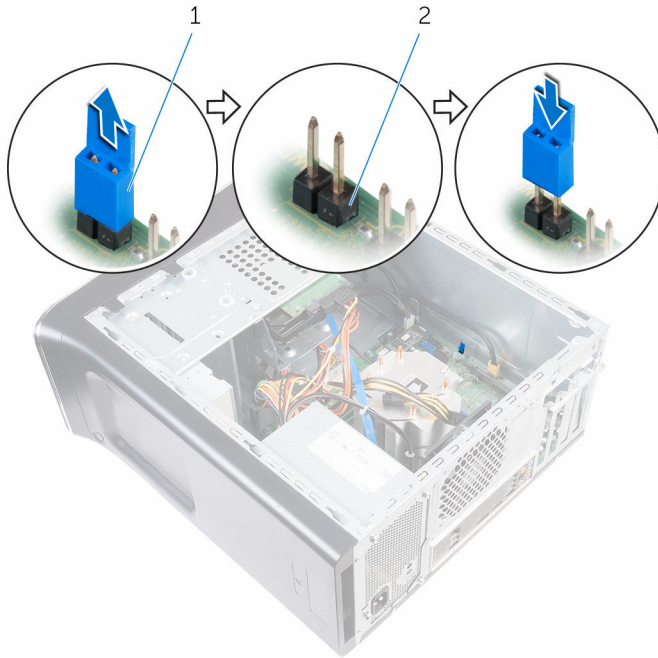
Remove the [computer cover](#).

## Procedure

- 1 Locate the password reset jumper (PSWD) on the system board.

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

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




1 jumper plug

2 password jumper-pins

## Post-requisites

Replace the [computer cover](#).


# Clearing CMOS settings

 **WARNING:** 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](http://www.dell.com/regulatory_compliance).

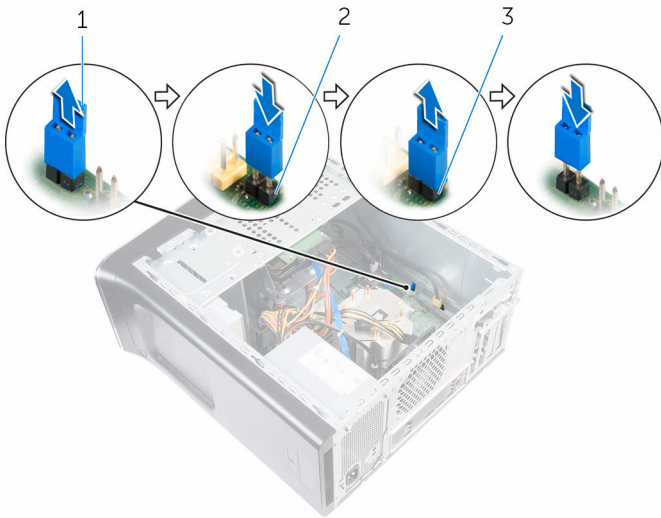
## Prerequisites

Remove the [computer cover](#).

## Procedure

- 1 Locate the CMOS reset jumper (CMCLR) on the system board.
  -  **NOTE:** For more information on the location of the CMOS jumper, see "[System-board components](#)".
- 2 Remove the jumper plug from the password jumper-pins (PSWD) and connect it to the CMOS jumper-pins.

- 3 Wait for 5 seconds and then replace the jumper plug to the password jumper-pins (PSWD).



1 jumper plug

2 password jumper-pins (PSWD)

3 CMOS jumper-pins

## Post-requisites


Replace the [computer 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 the computer.
- 2 Go to **[www.dell.com/support](http://www.dell.com/support)**.
- 3 Click **Product Support**, enter the Service Tag of your computer and 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**.
- 5 Select the operating system installed on your computer.
- 6 Scroll down the page and expand **BIOS**.
- 7 Click **Download File** to download the latest version of the BIOS for your computer.
- 8 Save the file and, once 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.

# Getting help and contacting Dell

---

## Self-help resources

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

Information about Dell products and services

[www.dell.com](http://www.dell.com)

Windows 8.1 and Windows 10

Dell Help & Support app



Windows 10

Get started app



Windows 8.1

Help + Tips app



Accessing help in Windows 8, Windows 8.1, and Windows 10

In Windows search, type **Help and Support**, and press **Enter**.

Accessing help in Windows 7

Click **Start** → **Help and Support**.

Online help for operating system

[www.dell.com/support/windows](http://www.dell.com/support/windows)  
[www.dell.com/support/linux](http://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](http://www.dell.com/support)

Learn about your operating system, setting up and using your computer, data backup, diagnostics, and so on.

See *Me and My Dell* at [www.dell.com/support/manuals](http://www.dell.com/support/manuals).

# Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://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.