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.
1 Set up your computer ......................................................................................................................... 5

2 Create a USB recovery drive for Windows .......................................................................................... 7

3 Chassis ..................................................................................................................................................... 8
   Display .................................................................................................................................................. 8
   Bottom ............................................................................................................................................... 9
   Left ................................................................................................................................................... 9
   Right ............................................................................................................................................... 9
   Front .............................................................................................................................................. 10
   Base ............................................................................................................................................. 10
   Modes ........................................................................................................................................... 10
      Notebook ................................................................................................................................. 10
      Tablet ...................................................................................................................................... 11
      Stand ....................................................................................................................................... 11
      Tent ......................................................................................................................................... 11
   Dell Premium Active Pen—Optional .............................................................................................. 12

4 Keyboard shortcuts ............................................................................................................................ 13

5 System specifications ......................................................................................................................... 15
   System information .................................................................................................................... 15
   Processor ..................................................................................................................................... 16
   Memory ........................................................................................................................................ 16
   Storage ........................................................................................................................................ 16
   Audio .......................................................................................................................................... 17
   System board connectors ........................................................................................................... 17
   Media card-reader ...................................................................................................................... 17
   Video card .................................................................................................................................. 17
   Camera ......................................................................................................................................... 18
   Wireless ...................................................................................................................................... 18
   Ports and connectors .................................................................................................................. 19
   Display ........................................................................................................................................ 19
   Keyboard ...................................................................................................................................... 20
   Touchpad ..................................................................................................................................... 20
   Operating system ....................................................................................................................... 20
   Battery ......................................................................................................................................... 21
   Power adapter ............................................................................................................................. 21
   Dimensions and weight ............................................................................................................... 22
   Computer environment ............................................................................................................... 22
   Security ....................................................................................................................................... 22
   Security Software ...................................................................................................................... 23
## Contents

### 6 System setup
- Boot menu.................................................................................................................. 24
- Navigation keys......................................................................................................... 24
- System setup options.................................................................................................. 25
  - General options...................................................................................................... 25
  - System information................................................................................................. 26
- Video............................................................................................................................ 27
- Security....................................................................................................................... 27
- Secure boot................................................................................................................ 29
- Intel Software Guard Extensions................................................................................ 29
- Performance.............................................................................................................. 30
- Power management.................................................................................................... 31
- POST behavior.......................................................................................................... 32
- Manageability........................................................................................................... 33
- Virtualization support............................................................................................... 33
- Wireless.................................................................................................................... 33
- Maintenance screen................................................................................................... 34
- System logs................................................................................................................ 34
- SupportAssist System Resolution............................................................................. 34
- System and setup password....................................................................................... 35
  - Assigning a system setup password...................................................................... 35
  - Deleting or changing an existing system setup password................................. 35

### 7 Software
- Replacement media options....................................................................................... 37
- Resource DVD.......................................................................................................... 37
  - Installing drivers using the resource DVD............................................................ 37
- Operating system...................................................................................................... 37
- Downloading the audio driver.................................................................................. 38
- Downloading the graphics driver............................................................................. 38
- Downloading the USB 3.0 driver............................................................................. 39
- Downloading the Wi-Fi driver.................................................................................. 39
- Downloading the media-card reader driver.............................................................. 40
- Downloading the fingerprint reader driver.............................................................. 40
- Downloading the chipset driver............................................................................... 41
- Downloading the network driver............................................................................ 41
- Device drivers.......................................................................................................... 43
  - Intel Chipset Software Installation Utility............................................................ 43
  - Intel HD Graphics driver....................................................................................... 44
  - Intel Serial IO driver............................................................................................. 44
  - Intel Trusted Execution Engine Interface............................................................. 46
  - Intel Virtual Button driver.................................................................................... 48
  - Intel Wi-Fi and Bluetooth drivers........................................................................ 50

### 8 Getting help
- Contacting Dell......................................................................................................... 51
Set up your computer

1. Connect the power adapter and press the power button.

   - **NOTE:** To conserve battery power, the battery might enter power saving mode.
   - **NOTE:** Use any USB Type-C port to charge your computer; the primary-charging port is indicated by the power-adapter icon.

2. Finish Windows system setup.

   Follow the on-screen instructions to complete the setup. When setting up, Dell recommends that you:
   - Connect to a network for Windows updates.
   - If connecting to a secured wireless network, enter the password for the wireless network access when prompted.
   - If connected to the internet, sign-in with or create a Microsoft account. If not connected to the internet, create an offline account.
   - On the **Support and Protection** screen, enter your contact details.

3. Locate and use Dell apps from the Windows Start menu—Recommended

   **Table 1. Locate Dell apps**

<table>
<thead>
<tr>
<th>Dell Product Registration</th>
<th>Register your computer with Dell.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Help &amp; Support</td>
<td>Access help and support for your computer.</td>
</tr>
<tr>
<td>SupportAssist</td>
<td>Proactively checks the health of your computer’s hardware and software.</td>
</tr>
</tbody>
</table>

   - **NOTE:** Renew or upgrade your warranty by clicking the warranty expiry date in SupportAssist.
Dell Update

Updates your computer with critical fixes and important device drivers as they become available.

Dell Digital Delivery

Download software applications including software that is purchased but not pre-installed on your computer.

4 Create recovery drive for Windows.

⚠️ **NOTE:** It is recommended to create a recovery drive to troubleshoot and fix problems that may occur with Windows.

For more information, see Create a USB recovery drive for Windows.
Create a USB recovery drive for Windows

Create a recovery drive to troubleshoot and fix problems that may occur with Windows. An empty USB flash drive with a minimum capacity of 16 GB is required to create the recovery drive.

**NOTE:** This process may take up to an hour to complete.

**NOTE:** The following steps may vary depending on the version of Windows installed. Refer to the Microsoft support site for latest instructions.

1. Connect the USB flash drive to your computer.
2. In Windows search, type `Recovery`.
3. In the search results, click `Create a recovery drive`.
   - The User Account Control window is displayed.
4. Click Yes to continue.
   - The Recovery Drive window is displayed.
5. Select `Back up system files to the recovery drive` and click Next.
6. Select the USB flash drive and click Next.
   - A message appears, indicating that all data in the USB flash drive will be deleted.
7. Click Create.
8. Click Finish.

For more information about reinstalling Windows using the USB recovery drive, see the Troubleshooting section of your product's Service Manual at www.dell.com/support/manuals.
This chapter illustrates the multiple chassis views along with the ports and connectors and also explains the FN hot key combinations.

Topics:
- Display
- Bottom
- Left
- Right
- Front
- Base
- Modes
- Dell Premium Active Pen—Optional

Display

1. Infrared emitter
2. Infrared camera
3. Camera-status light
4. Camera
5. Infrared emitter
Bottom

1 Left speaker  
3 Right speaker  
2 Service Tag label

Left

1 Thunderbolt 3 (USB Type-C) port with Power Delivery (Primary)  
2 Thunderbolt 3 (USB Type-C) port with Power Delivery  
3 microSD-card slot  
4 Battery-charge status button  
5 Battery-charge status lights (5)  
6 Dell Premium Active Pen magnets

Right

1 USB 3.1 Gen 1 (Type-C) port with Power Delivery/DisplayPort (2)  
2 Headset port  
3 Security-cable slot (for Noble locks)
**Front**

1. Power and battery-status light
2. Digital-array microphones (4)

**Base**

1. Touchpad
2. Left-click area
3. Right-click area
4. Power button with optional fingerprint reader

**Modes**

**Notebook**
Tablet

Stand

Tent
Dell Premium Active Pen—Optional

For more information, see www.dell.com/support.
NOTE: Keyboard characters may differ depending on the keyboard language configuration. Keys used for shortcuts remain the same across all language configurations.

Table 2. List of keyboard shortcuts

<table>
<thead>
<tr>
<th>Keys</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="F1" alt="" /></td>
<td>Mute audio</td>
</tr>
<tr>
<td><img src="F2" alt="" /></td>
<td>Decrease volume</td>
</tr>
<tr>
<td><img src="F3" alt="" /></td>
<td>Increase volume</td>
</tr>
<tr>
<td><img src="F4" alt="" /></td>
<td>Play previous track/chapter</td>
</tr>
<tr>
<td><img src="F5" alt="" /></td>
<td>Play/Pause</td>
</tr>
<tr>
<td><img src="F6" alt="" /></td>
<td>Play next track/chapter</td>
</tr>
<tr>
<td><img src="F7" alt="" /></td>
<td>Launch Task View</td>
</tr>
<tr>
<td><img src="F8" alt="" /></td>
<td>Switch to external display</td>
</tr>
<tr>
<td><img src="F9" alt="" /></td>
<td>Search</td>
</tr>
<tr>
<td><img src="F10" alt="" /></td>
<td>Toggle keyboard backlight</td>
</tr>
<tr>
<td>PrtScr</td>
<td>Printscreen</td>
</tr>
<tr>
<td>Insert</td>
<td>Insert</td>
</tr>
<tr>
<td><img src="Fn" alt="" /> + <img src="Home" alt="" /></td>
<td>Turn off/on wireless</td>
</tr>
<tr>
<td>Keys</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Fn + End</td>
<td>Sleep</td>
</tr>
<tr>
<td>Fn + ↑</td>
<td>Increase brightness</td>
</tr>
<tr>
<td>Fn + ↓</td>
<td>Decrease brightness</td>
</tr>
<tr>
<td>Fn + Ctrl</td>
<td>Open application menu</td>
</tr>
<tr>
<td>Fn + Esc</td>
<td>Toggle Fn-key lock</td>
</tr>
</tbody>
</table>
System specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information about the configuration of your computer, go to Help and Support in your Windows operating system and select the option to view information about your computer.

Topics:

- System information
- Processor
- Memory
- Storage
- Audio
- System board connectors
- Media card-reader
- Video card
- Camera
- Wireless
- Ports and connectors
- Display
- Keyboard
- Touchpad
- Operating system
- Battery
- Power adapter
- Dimensions and weight
- Computer environment
- Security
- Security Software

System information

Table 3. System information

<table>
<thead>
<tr>
<th>Topic</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td>Intel QM175 Chipset</td>
</tr>
<tr>
<td>DRAM bus width</td>
<td>64-bit</td>
</tr>
<tr>
<td>FLASH EPROM</td>
<td>SP1 32 MB</td>
</tr>
<tr>
<td>PCIe bus</td>
<td>100 Mhz</td>
</tr>
<tr>
<td>External bus frequency</td>
<td>DMI 3.0-8GT/s</td>
</tr>
</tbody>
</table>
Processor

NOTE: Processor numbers are not a measure of performance. Processor availability is subject to change and may vary by region/country.

Table 4. Processor specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>UMA Graphics</th>
</tr>
</thead>
<tbody>
<tr>
<td>8th Gen Intel Core i7-8706G processor (8M Cache, up to 4.10 GHz)</td>
<td>Intel HD Graphics 630</td>
</tr>
<tr>
<td>8th Gen Intel Core i5-8305G processor (6M Cache, up to 3.80 GHz)</td>
<td>Intel HD Graphics 630</td>
</tr>
</tbody>
</table>

Memory

Table 5. Memory specifications

| Minimum memory configuration | 8 GB |
| Maximum memory configuration | 16 GB |
| Number of slots | Onboard memory |
| Memory options | 8 GB - 1 x 8 GB (optional) |
| | 16 GB - 2 x 8 GB (optional) |
| | 16 GB - 1 x 16 GB (optional) |
| Type | DDR4 |
| Speed | 2400 MHz |

Storage

Table 6. Storage specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Form factor</th>
<th>Interface</th>
<th>Security option</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SATA Solid-State Drive</td>
<td>SSD</td>
<td>M.2 SSD</td>
<td></td>
<td>128 GB</td>
</tr>
<tr>
<td>NVMe Solid-State Drive (Class 40)</td>
<td>NVMe</td>
<td>M.2 SSD</td>
<td></td>
<td>256 GB</td>
</tr>
<tr>
<td>NVMe Solid-State Drive (Class 40)</td>
<td>NVMe</td>
<td>M.2 SSD</td>
<td></td>
<td>512 GB</td>
</tr>
<tr>
<td>NVMe Solid-State Drive (Class 40)</td>
<td>NVMe</td>
<td>M.2 SSD</td>
<td></td>
<td>1 TB</td>
</tr>
<tr>
<td>NVMe Solid-State Drive (Class 40)</td>
<td>NVMe</td>
<td>M.2 SSD</td>
<td></td>
<td>2 TB</td>
</tr>
<tr>
<td>NVMe Solid-State Drive (Class 40)</td>
<td>NVMe</td>
<td>M.2 SSD</td>
<td>SED</td>
<td>256 GB</td>
</tr>
</tbody>
</table>
### Audio

**Table 7. Audio specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>Controller</th>
<th>Interface</th>
<th>Security option</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NVMe Solid-State Drive (Class 40)</td>
<td>Realtek ALC3271 with Waves MaxxAudio Pro</td>
<td>M.2 SSD</td>
<td>SED</td>
<td>512 GB</td>
</tr>
</tbody>
</table>

**Type**

- Four-channel high-definition audio

**Speakers**

- Two (Directional speakers)

**Interface**

- Universal audio jack
- High quality speakers
- Noise reducing array microphones
- Stereo headset/mic combo

**Internal speaker amplifier**

2 W (RMS) per channel

### System board connectors

**Table 8. System board connectors**

<table>
<thead>
<tr>
<th>Type</th>
<th>M.2 Connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>One M2. 2280 Key-M Connector</td>
<td></td>
</tr>
</tbody>
</table>

### Media card-reader

**Table 9. Media-card reader specifications**

<table>
<thead>
<tr>
<th>Type</th>
<th>One MicroSD card slot</th>
</tr>
</thead>
</table>

**Supported cards**

- SD
- SDHC
- SDXC

### Video card

**Table 10. Video card specifications**

<table>
<thead>
<tr>
<th>Controller</th>
<th>Type</th>
<th>CPU Dependency</th>
<th>Graphics memory type</th>
<th>Capacity</th>
<th>External display support</th>
<th>Maximum resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel UHD Graphics 630</td>
<td>UMA</td>
<td>Intel Corei7-8706G processor</td>
<td>Integrated</td>
<td>Shared system memory</td>
<td>DisplayPort HDMI 1.4</td>
<td>4096x2304</td>
</tr>
</tbody>
</table>
Camera

Table 11. Camera specifications

Resolution Camera:
- Still image: 0.92 megapixels
- Video: 1280x720 at 30 fps
Infrared camera (optional):
- Still image: 0.30 megapixels
- Video: 340x340 at 60 fps
Diagonal viewing angle
- Camera - 66°
- Infrared camera - 70°
Number of cameras 2
Camera Type HD, Infrared
Sensor Type
Video Max resolution 1280x720 (HD) at 30 fps
Still image max resolution 0.92 megapixel (HD)
Imaging frame rate
Diagonal angle Camera
1 Diagonal >/ 86.7° (tolerance +/- 3%)
Infrared Camera
2 Vertical >/ 47°
1 Diagonal >/ 70° (tolerance +/- 3%)
2 Vertical >/ 47°

Wireless

Table 12. Wireless specifications

Type Killer 1435-S Intel 8265
Maximum transfer rate 867 Mbps 867 Mbps
Frequency bands 2.4 GHz/5 GHz 2.4 GHz/5 GHz
Encryption
- 64-bit/128-bit WEP
- AES-CCMP
- TKIP

Ports and connectors

Table 13. Ports and connectors

Memory card reader
- microSD 4.0 memory card reader

USB
- Two Thunderbolt 3 (USB Type-C) ports with Power Delivery
- Two USB 3.1 Gen 1 (USB Type-C) port with Power Delivery/DisplayPort

Security
- Noble wedge lock slot/Kensington lock slot

Audio
- One headset (headphone and microphone combo) port
- 2-channel high definition audio
- Stereo conversion
  - 16/20/24-bit (analog-to-digital and digital-to-analog)
- Internal interface
  - High-definition audio codec
- Speakers
  - Power/peak power: 2 W average/2.5 W peak
- Internal speaker amplifier
  - 10 W per channel
- Internal microphone
  - Digital-array microphones
- Volume controls
  - Media-control shortcut keys

Video
- Two Thunderbolt 3 (USB Type-C) ports with Power Delivery
- Two USB 3.1 Gen 1 (USB Type-C) port with Power Delivery

Display

Table 14. Display specifications

Type
- 15.6-inch 4K Ultra HD (3840 x 2160) InfinityEdge touch display
- 15.6-inch FHD (1920 x 1080) InfinityEdge non-touch display

Height (Active area)
- 344.22 mm (13.55 in)
Width (Active area)
- 344.16 mm (13.54 in)
- 193.62 mm (7.62 in)
- 193.59 mm (7.62 in)

Diagonal
- 396.24 mm (15.60 in)

Luminance/Brightness (typical)
- 400 nits max

Refresh rate
- 60 Hz

Horizontal viewing angle (min)
- +/- 40 degrees

Vertical viewing angle (min)
- +10/- 30 degrees

Keyboard

Table 15. Keyboard specifications

Number of keys
- 103 (U.S. and Canada)
- 104 (Europe)
- 106 (Brazil)
- 107 (Japan)

Size
- Full sized
  - X= 19.00 mm key pitch
  - Y= 19.00 mm key pitch

Backlit keyboard
- Optional

Layout
- QWERTY/AZERTY/Kanji

Touchpad

Table 16. Touchpad specifications

Resolution
- 1219 x 919

Dimensions
- Width: 4.13 inch (105 mm)
- Height: 3.14 inch (80 mm)

Multi-touch
- Supports five fingers

Operating system

Table 17. Operating system

Operating systems supported
- Windows 10 Home (64 bit)
- Windows 10 Pro (64 bit)
Battery

Table 18. Battery

<table>
<thead>
<tr>
<th>Type</th>
<th>6-cell smart lithium-ion (75 WHr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension</td>
<td>Width</td>
</tr>
<tr>
<td></td>
<td>Depth</td>
</tr>
<tr>
<td></td>
<td>Height</td>
</tr>
<tr>
<td>Weight (maximum)</td>
<td>0.32 kg (0.71 lb)</td>
</tr>
<tr>
<td>Voltage</td>
<td>11.4 VDC</td>
</tr>
<tr>
<td>Life span</td>
<td>300 discharge / charge cycles</td>
</tr>
<tr>
<td>Charging time when the computer is off (approximate)</td>
<td>Standard charge</td>
</tr>
<tr>
<td></td>
<td>Express Charge</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating time</td>
<td>Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions</td>
</tr>
<tr>
<td>Temperature range: Operating</td>
<td>0°C to 35°C (32°F to 95°F)</td>
</tr>
<tr>
<td>Temperature range: Storage</td>
<td>-20°C to 60°C (-40°F to 149°F)</td>
</tr>
<tr>
<td>Coin-cell battery</td>
<td>CR 2032</td>
</tr>
</tbody>
</table>

Power adapter

Table 19. Power adapter specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>USB Type-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Voltage</td>
<td>100 VAC - 240 VAC</td>
</tr>
<tr>
<td>Input current (maximum)</td>
<td>1.80 A</td>
</tr>
<tr>
<td>Adapter size</td>
<td></td>
</tr>
<tr>
<td>Input frequency</td>
<td>50 Hz to 60 Hz</td>
</tr>
<tr>
<td>Output current</td>
<td>6.50 A</td>
</tr>
</tbody>
</table>
Rated output voltage  
20 VDC

Temperature range (Operating)  
0°C to 40°C (32°F to 104°F)

Temperature range (Non-Operating)  
40°C to 70°C (-40°F to 158°F)

## Dimensions and weight

### Table 20. Dimensions and weight

<table>
<thead>
<tr>
<th>Feature</th>
<th>Operating</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>9 mm to 16 mm (0.35 inch to 0.62 inch)</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>354 mm (13.93 inch)</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>235 mm (9.25 inch)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>2 kg (4.36 lb)</td>
<td></td>
</tr>
</tbody>
</table>

## Computer environment

**Airborne contaminant level:** G1 as defined by ISA-S71.04-1985

### Table 21. Computer environment

<table>
<thead>
<tr>
<th>Feature</th>
<th>Operating</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
<td>0°C to 35°C (32°F to 95°F)</td>
<td>-40°C to 65°C (-40°F to 149°F)</td>
</tr>
<tr>
<td>Relative humidity (maximum)</td>
<td>10% to 80% (non-condensing)</td>
<td>10% to 95% (non-condensing)</td>
</tr>
</tbody>
</table>

1. **NOTE:** Maximum dew point temperature = 26°C

1. **NOTE:** Maximum dew point temperature = 33°C

<table>
<thead>
<tr>
<th>Vibration (maximum)</th>
<th>0.26 GRMS</th>
<th>1.37 GRMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock (maximum)</td>
<td>105 G †</td>
<td>40 G ‡</td>
</tr>
<tr>
<td>Altitude (maximum)</td>
<td>-15.2 m to 3048 m (-50 ft to 10,000 ft)</td>
<td>-15.2 m to 10,668 m (-50 ft to 35,000 ft)</td>
</tr>
</tbody>
</table>

* Measured using a random vibration spectrum that simulates user environment.

† Measured using a 2 ms half-sine pulse when the hard drive is in use.

‡ Measured using a 2 ms half-sine pulse when the hard-drive head is in parked position.

## Security

### Table 22. Security

<table>
<thead>
<tr>
<th>Feature</th>
<th>Operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trusted Platform Module (TPM) 2.0</td>
<td>Integrated on the system board</td>
</tr>
<tr>
<td>Discrete TPM</td>
<td>Optional</td>
</tr>
<tr>
<td>Security Software</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>Table 23. Security Software</strong></td>
<td></td>
</tr>
<tr>
<td>Dell Endpoint Security Suite Enterprise</td>
<td>Optional</td>
</tr>
<tr>
<td>Dell Data Guardian</td>
<td>Optional</td>
</tr>
<tr>
<td>Dell Encryption (Enterprise or Personal)</td>
<td>Optional</td>
</tr>
<tr>
<td>Dell Threat Defense</td>
<td>Optional</td>
</tr>
<tr>
<td>RSA SecurID Access</td>
<td>Optional</td>
</tr>
<tr>
<td>RSA NetWitness Endpoint</td>
<td>Optional</td>
</tr>
<tr>
<td>MozyPro or MozyEnterprise</td>
<td>Optional</td>
</tr>
<tr>
<td>VMware Airwatch/WorkspaceONE</td>
<td>Optional</td>
</tr>
<tr>
<td>Absolute Data &amp; Device Security</td>
<td>Optional</td>
</tr>
</tbody>
</table>
System setup

System setup enables you to manage your notebook hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Topics:
- Boot menu
- Navigation keys
- System setup options
- System and setup password

Boot menu

Press <F12> when the Dell logo appears to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.

The options are:

- UEFI Boot:
  - Windows Boot Manager

- Other Options:
  - BIOS Setup
  - BIOS Flash Update
  - Diagnostics
  - Change Boot Mode Settings

Navigation keys

**NOTE:** For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the system.

<table>
<thead>
<tr>
<th>Keys</th>
<th>Navigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up arrow</td>
<td>Moves to the previous field.</td>
</tr>
<tr>
<td>Down arrow</td>
<td>Moves to the next field.</td>
</tr>
<tr>
<td>Enter</td>
<td>Selects a value in the selected field (if applicable) or follow the link in the field.</td>
</tr>
<tr>
<td>Spacebar</td>
<td>Expands or collapses a drop-down list, if applicable.</td>
</tr>
</tbody>
</table>
Keys

Tab
Moves to the next focus area.

Esc
Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.

NOTE: For the standard graphics browser only.

System setup options

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

General options

Table 24. General

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Information</td>
<td>Displays the following information:</td>
</tr>
<tr>
<td></td>
<td>• System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code.</td>
</tr>
<tr>
<td></td>
<td>• Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, and Memory Technology.</td>
</tr>
<tr>
<td></td>
<td>• Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit Technology.</td>
</tr>
<tr>
<td></td>
<td>• Device Information: Displays M.2 SATA, M.2 PCIe SSD-0, Passthrough MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel type, Native Resolution, Audio Controller, Wi-Fi Device, and Bluetooth Device.</td>
</tr>
<tr>
<td>Battery Information</td>
<td>Displays the battery status health and whether the AC adapter is installed.</td>
</tr>
<tr>
<td>Boot Sequence</td>
<td>Allows you to specify the order in which the computer attempts to find an operating system from the devices specified in this list.</td>
</tr>
<tr>
<td>Advanced Boot Options</td>
<td>Allows you to select the Legacy Option ROMs option, when in UEFI boot mode. By default, no option is selected.</td>
</tr>
<tr>
<td></td>
<td>• Enable Legacy Option ROMs</td>
</tr>
<tr>
<td></td>
<td>• Enable Attempt Legacy Boot</td>
</tr>
<tr>
<td></td>
<td>• Enable UEFI Network Stack</td>
</tr>
<tr>
<td>UEFI Boot Path Security</td>
<td>This option controls whether or not the system will prompt the user to enter the Admin password when booting a UEFI boot path from the F12 Boot Menu.</td>
</tr>
<tr>
<td></td>
<td>• Always, Except Internal HDD—Default</td>
</tr>
<tr>
<td></td>
<td>• Always</td>
</tr>
<tr>
<td></td>
<td>• Never</td>
</tr>
<tr>
<td>Date/Time</td>
<td>Allows you to set the date and time settings. Changes to the system date and time take effect immediately.</td>
</tr>
</tbody>
</table>
System information

Table 25. System Configuration

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SATA Operation</td>
<td>Allows you to configure the operating mode of the integrated hard drive controller.</td>
</tr>
<tr>
<td></td>
<td>• Disabled = The SATA controllers are hidden</td>
</tr>
<tr>
<td></td>
<td>• AHCI = SATA is configured for AHCI mode</td>
</tr>
<tr>
<td></td>
<td>• RAID ON = SATA is configured to support RAID mode (selected by default)</td>
</tr>
<tr>
<td>Drives</td>
<td>Allows you to enable or disable the various drives on-board:</td>
</tr>
<tr>
<td></td>
<td>• SATA-0 (enabled by default)</td>
</tr>
<tr>
<td></td>
<td>• M.2 PCIe SSD-0 (enabled by default)</td>
</tr>
<tr>
<td>Smart Reporting</td>
<td>This field controls whether hard drive errors for integrated drives are reported during system startup.</td>
</tr>
<tr>
<td></td>
<td>The <strong>Enable Smart Reporting option</strong> is disabled by default.</td>
</tr>
<tr>
<td>USB Configuration</td>
<td>Allows you to enable or disable the integrated USB controller for:</td>
</tr>
<tr>
<td></td>
<td>• Enable USB Boot Support</td>
</tr>
<tr>
<td></td>
<td>• Enable External USB Port</td>
</tr>
<tr>
<td></td>
<td>All the options are enabled by default.</td>
</tr>
<tr>
<td>Dell Type-C Dock Configuration</td>
<td>This section allows connection to the Dell WD and TB family of docks (Type-C docks) independent of USB and Thunderbolt Adapter configuration settings.</td>
</tr>
<tr>
<td></td>
<td>• Always Allow Dell Docks is enabled</td>
</tr>
<tr>
<td>Thunderbolt Adapter Configuration</td>
<td>This section allows Thunderbolt Adapter Configuration.</td>
</tr>
<tr>
<td></td>
<td>• Enable Thunderbolt Technology Support-is enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Enable Thunderbolt Adapter Boot Support-is disabled</td>
</tr>
<tr>
<td></td>
<td>• Enable Thunderbolt Adapter Pre-boot Modules-is disabled</td>
</tr>
<tr>
<td></td>
<td>• Security level-No security-is disabled</td>
</tr>
<tr>
<td></td>
<td>• Security level-User configuration-enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Security level-Secure connect-is disabled</td>
</tr>
<tr>
<td></td>
<td>• Security level- Display port only-is disabled</td>
</tr>
<tr>
<td>Audio</td>
<td>Allows you to enable or disable the integrated audio controller. The option <strong>Enable Audio</strong> is selected by default.</td>
</tr>
<tr>
<td></td>
<td>• Enable Microphone</td>
</tr>
<tr>
<td></td>
<td>• Enable Internal Speaker</td>
</tr>
<tr>
<td></td>
<td>Both the options are selected by default.</td>
</tr>
<tr>
<td>Keyboard Illumination</td>
<td>This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Dim</td>
</tr>
<tr>
<td></td>
<td>• Bright-enabled by default</td>
</tr>
</tbody>
</table>
### Option

#### Keyboard Backlight Timeout on AC

The Keyboard Backlight Timeout dims out with AC option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:

- 5 sec
- 10 sec-enabled by default
- 15 sec
- 30 sec
- 1 min
- 5 min
- 15 min
- Never

#### Keyboard Backlight Timeout on Battery

The Keyboard Backlight Timeout dims out with the Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:

- 5 sec
- 10 sec-enabled by default
- 15 sec
- 30 sec
- 1 min
- 5 min
- 15 min
- Never

#### Touchscreen

It controls whether the screen is enabled or disabled. This option is enabled by default.

#### Miscellaneous Devices

Allows you to enable or disable the following devices:

- Enable Camera-enabled by default
- Enable Secure Digital (SD) Card-enabled by default
- Secure Digital (SD) Card Boot-disabled by default
- Secure Digital (SD) Card Read-Only-Mode-disabled by default

### Video

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LCD Brightness</strong></td>
<td>Allows you to set the display brightness depending up on the power source—On Battery and On AC. The LCD brightness is independent for battery and AC adapter. It can be set using the slider.</td>
</tr>
</tbody>
</table>

**NOTE:** The video setting is visible only when a video card is installed into the system.

### Security

**Table 26. Security**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin Password</td>
<td>Allows you to set, change, and delete the admin password.</td>
</tr>
<tr>
<td>System Password</td>
<td>Allows you to set, change, and delete the system password.</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Strong Password</td>
<td>This option lets you enable or disable strong passwords for the system.</td>
</tr>
<tr>
<td>Password Configuration</td>
<td>Allows you to control the minimum and maximum number of characters allowed for an administrative password and the system password. The range of characters is between 4 and 32.</td>
</tr>
</tbody>
</table>
| Password Bypass           | This option lets you bypass the System (Boot) Password and the internal HDD password prompts during a system restart.  
                          | • Disabled — Always prompt for the system and internal HDD password when they are set. This option is enabled by default.  
                          | • Reboot Bypass — Bypass the password prompts on Restarts (warm boots).  |
| Password Change           | This option lets you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set.  
                          | **Allow Non-Admin Password Changes** - This option is enabled by default. |
| Non-Admin Setup Changes   | Determines whether changes to the setup option are permitted when an administrator password is set. |
| UEFI Capsule Firmware Updates | This option controls whether this system allows BIOS updates via UEFI capsule update packages.  
                          | This option is selected by default. Disabling this option will block BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS) |
| TPM 2.0 Security         | Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system.  
                          | • TPM On (default)  
                          | • Clear  
                          | • PPI Bypass for Enable Commands (default)  
                          | • PPI Bypass for Disable Commands  
                          | • PPI Bypass for Clear Commands  
                          | • Attestation Enable (default)  
                          | • Key Storage Enable (default)  
                          | • SHA-256 (default)  
                          | Choose any one option:  
                          | • Disabled  
                          | • Enabled (default) |
| Computrace(R)             | This field lets you Activate or Disable the BIOS module interface of the optional Computrace Service from Absolute Software. Enables or disables the optional Computrace service designed for asset management.  
                          | • Deactivate  
                          | • Disable  
                          | • Activate - This option is selected by default. |
| OROM Keyboard Access      | This option determines whether users are able to enter Option ROM configuration screen via hotkeys during boot.  
                          | • Enabled (default)  
                          | • Disabled  
                          | • One Time Enable |
| Admin Setup Lockout       | Allows you to prevent users from entering Setup when Admin password is set. This option is not set by default. |
Master Password Lockout | Allows you to disable master password support. Hard Disk passwords need to be cleared before the settings can be changed. This option is not set by default.
---|---
SMM Security Mitigation | Allows you to enable or disable additional UEFI SMM Security Mitigation protections. This option is not set by default.

## Secure boot

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| Secure Boot Enable | Allows you to enable or disable Secure Boot feature.  
- Secure Boot Enable  
This option is selected by default. |
| Secure Boot Mode | Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures.  
- Deployed Mode (default)  
- Audit Mode |
| Expert key Management | Allows you to manipulate the security key databases only if the system is in Custom Mode. The **Enable Custom Mode** option is disabled by default. The options are:  
- **PK** (default)  
- **KEK**  
- **db**  
- **dbx**  
If you enable the **Custom Mode**, the relevant options for **PK, KEK, db, and dbx** appear. The options are:  
- **Save to File** - Saves the key to a user-selected file  
- **Replace from File** - Replaces the current key with a key from a user-selected file  
- **Append from File** - Adds a key to the current database from a user-selected file  
- **Delete** - Deletes the selected key  
- **Reset All Keys** - Resets to default setting  
- **Delete All Keys** - Deletes all the keys |

**NOTE:** If you disable the **Custom Mode**, all the changes made will be erased and the keys will restore to default settings.

## Intel Software Guard Extensions

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel SGX Enable</td>
<td>This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS.</td>
</tr>
</tbody>
</table>
**Option** | **Description**
--- | ---
Click one of the following options: |  
- Disabled
- Enabled—Default
- Software controlled

**Enclave Memory Size**

This option sets **SGX Enclave Reserve Memory Size**

Click one of the following options:

- 32 MB
- 64 MB
- 128 MB—Default

---

**Performance**

**Table 29. Performance**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multi Core Support</strong></td>
<td>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.</td>
</tr>
</tbody>
</table>
|                     | - All—Default
|                     | - 1
|                     | - 2
|                     | - 3

**Intel SpeedStep**

Allows you to enable or disable the Intel SpeedStep mode of processor.

- **Enable Intel SpeedStep**

This option is set by default.

**C-States Control**

Allows you to enable or disable the additional processor sleep states.

- **C states**

This option is set by default.

**Intel TurboBoost**

Allows you to enable or disable the Intel TurboBoost mode of the processor.

- **Enable Intel TurboBoost**

This option is set by default.

**Hyper-Thread Control**

Allows you to enable or disable the HyperThreading in the processor.

- **Disabled**
- **Enabled**—Default
## Power management

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AC Behavior</strong></td>
<td>Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default setting: Wake on AC is not selected.</td>
</tr>
<tr>
<td><strong>Enable Intel Speed Shift Technology</strong></td>
<td>• Enable Intel Speed Shift Technology</td>
</tr>
<tr>
<td></td>
<td>Default setting: Enabled</td>
</tr>
<tr>
<td><strong>Auto On Time</strong></td>
<td>Allows you to set the time at which the computer must turn on automatically. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Every Day</td>
</tr>
<tr>
<td></td>
<td>• Weekdays</td>
</tr>
<tr>
<td></td>
<td>• Select Days</td>
</tr>
<tr>
<td></td>
<td>Default setting: Disabled</td>
</tr>
<tr>
<td><strong>USB Wake Support</strong></td>
<td>Allows you to enable USB devices to wake the system from Standby. <strong>NOTE:</strong> This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup removes power from all the USB ports to conserve battery power.</td>
</tr>
<tr>
<td></td>
<td>• Enable USB Wake Support</td>
</tr>
<tr>
<td></td>
<td>• Wake on Dell USB-C dock-enabled</td>
</tr>
<tr>
<td><strong>Wireless Radio Control</strong></td>
<td>Allows the system to sense the connection to a wired network and subsequently disable the selected wireless radios (WLAN and/or WWAN).</td>
</tr>
<tr>
<td></td>
<td>• Control WLAN radio</td>
</tr>
<tr>
<td></td>
<td>Default setting: This option is disabled.</td>
</tr>
<tr>
<td><strong>Wake on WLAN</strong></td>
<td>Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal.</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• WLAN</td>
</tr>
<tr>
<td></td>
<td>Default setting: Disabled</td>
</tr>
<tr>
<td><strong>Block Sleep</strong></td>
<td>This option lets you block entering to sleep (S3 state) in operating system environment. Block Sleep (S3 state)</td>
</tr>
<tr>
<td></td>
<td>Default setting: This option is disabled</td>
</tr>
<tr>
<td><strong>Peak Shift</strong></td>
<td>This option enables you to minimize the AC power consumption during the peak power times of day. After you enable this option, your system runs only in battery even if the AC is attached.</td>
</tr>
<tr>
<td></td>
<td>• Enable peak shift—is disabled</td>
</tr>
</tbody>
</table>
### Option Description
- Set battery threshold (15% to 100%) - 15% (enabled by default)

### Advanced Battery Charge Configuration
This option enables you to maximize the battery health. By enabling this option, your system uses the standard charging algorithm and other techniques, during the non work hours to improve the battery health.

Enable Advanced Battery Charge Mode is disabled

### Primary Battery Charge Configuration
Allows you to select the charging mode for the battery. The options are:
- Adaptive—enabled by default
- Standard—Fully charges your battery at a standard rate.
- ExpressCharge—The battery charges over a shorter time using Dell’s fast charging technology.
- Primarily AC use
- Custom

If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.

**NOTE:** All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.

### POST behavior

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter Warnings</td>
<td>Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default setting: Enable Adapter Warnings</td>
</tr>
<tr>
<td>Numlock Enable</td>
<td>Allows you to enable the Numlock option when the computer boots. Enable Network. This option is enabled by default.</td>
</tr>
<tr>
<td>Fn Lock Options</td>
<td>Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1–F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys. The available options are:</td>
</tr>
<tr>
<td></td>
<td>• Fn Lock—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Lock Mode Disable/Standard—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Lock Mode Enable/Secondary</td>
</tr>
<tr>
<td>Fastboot</td>
<td>Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Minimal—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Thorough</td>
</tr>
<tr>
<td></td>
<td>• Auto</td>
</tr>
<tr>
<td>Extended BIOS POST Time</td>
<td>Allows you to create an extra preboot delay. The options are:</td>
</tr>
<tr>
<td></td>
<td>• 0 seconds—enabled by default.</td>
</tr>
<tr>
<td></td>
<td>• 5 seconds</td>
</tr>
<tr>
<td></td>
<td>• 10 seconds</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Full Screen Log</td>
<td>• Enable Full Screen Logo—not enabled</td>
</tr>
<tr>
<td>Warnings and errors</td>
<td>• Prompt on warnings and errors—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Continue on warnings</td>
</tr>
<tr>
<td></td>
<td>• Continue on warnings and errors</td>
</tr>
</tbody>
</table>

### Manageability

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEBX Hotkey</td>
<td>Allows you to specify whether the MEBx Hotkey function should enable, during the system boot.</td>
</tr>
<tr>
<td></td>
<td>• Enable MEBx hotkey—enabled by default</td>
</tr>
</tbody>
</table>

### Virtualization support

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtualization</td>
<td>This field specifies whether a virtual Machine Monitor (VMM) can utilize the conditional hardware capabilities provided by Intel Virtualization Technology. Enable Intel Virtualization Technology—enabled by default.</td>
</tr>
<tr>
<td>VT for Direct I/O</td>
<td>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. Enable VT for Direct I/O - enabled by default.</td>
</tr>
<tr>
<td>Trusted Execution</td>
<td>This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM Virtualization Technology, and the Virtualization technology for direct I/O must be enabled to use this feature. Trusted Execution - disabled by default.</td>
</tr>
</tbody>
</table>

### Wireless

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless Switch</td>
<td>Allows to set the wireless devices that can be controlled by the wireless switch. The options are:</td>
</tr>
<tr>
<td></td>
<td>• WLAN</td>
</tr>
<tr>
<td></td>
<td>• Bluetooth</td>
</tr>
<tr>
<td></td>
<td>All the options are enabled by default.</td>
</tr>
</tbody>
</table>

**NOTE:** For WLAN enable or disable controls are tied together and they cannot be enabled or disabled independently.
### Option Description

**Wireless Device Enable**

Allows you to enable or disable the internal wireless devices.

- WLAN
- Bluetooth

All the options are enabled by default.

### Maintenance screen

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Service Tag</strong></td>
<td>Displays the Service Tag of your computer.</td>
</tr>
<tr>
<td><strong>Asset Tag</strong></td>
<td>Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.</td>
</tr>
<tr>
<td><strong>BIOS Downgrade</strong></td>
<td>This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default.</td>
</tr>
<tr>
<td><strong>Data Wipe</strong></td>
<td>This field allows users to erase the data securely from all internal storage devices. Option 'Wipe on Next boot' is not enabled by default. The following is list of devices affected:</td>
</tr>
<tr>
<td></td>
<td>- Internal SATA HDD/SSD</td>
</tr>
<tr>
<td></td>
<td>- Internal M.2 SATA SDD</td>
</tr>
<tr>
<td></td>
<td>- Internal M.2 PCIe SSD</td>
</tr>
<tr>
<td></td>
<td>- Internal eMMC</td>
</tr>
</tbody>
</table>

- **BIOS Recovery**
  - This field allows you to recover from certain corrupted BIOS conditions from a recover file on the user primary hard drive or an external USB key.
  - BIOS Recovery from Hard Drive—enabled by default
  - Always perform integrity check—disabled by default

### System logs

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIOS Events</strong></td>
<td>Allows you to view and clear the System Setup (BIOS) POST events.</td>
</tr>
<tr>
<td><strong>Thermal Events</strong></td>
<td>Allows you to view and clear the System Setup (Thermal) events.</td>
</tr>
<tr>
<td><strong>Power Events</strong></td>
<td>Allows you to view and clear the System Setup (Power) events.</td>
</tr>
</tbody>
</table>

### SupportAssist System Resolution

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Auto OS Recovery Threshold</strong></td>
<td>Allows you to control the automatic boot flow for SupportAssist System. Options are:</td>
</tr>
<tr>
<td></td>
<td>- Off</td>
</tr>
<tr>
<td></td>
<td>- 1</td>
</tr>
</tbody>
</table>
### System and setup password

<table>
<thead>
<tr>
<th>Password type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System password</td>
<td>Password that you must enter to log on to your system.</td>
</tr>
<tr>
<td>Setup password</td>
<td>Password that you must enter to access and make changes to the BIOS settings of your computer.</td>
</tr>
</tbody>
</table>

You can create a system password and a setup password to secure your computer.

⚠️ **CAUTION:** The password features provide a basic level of security for the data on your computer.

⚠️ **CAUTION:** Anyone can access the data stored on your computer if it is not locked and left unattended.

‼️ **NOTE:** System and setup password feature is disabled.

### Assigning a system setup password

You can assign a new **System or Admin Password** only when the status is in **Not Set**.

To enter the system setup, press F2 immediately after a power-on or re-boot.

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter. The **Security** screen is displayed.
2. Select **System/Admin Password** and create a password in the **Enter the new password** field.
   - Use the following guidelines to assign the system password:
     - A password can have up to 32 characters.
     - The password can contain the numbers 0 through 9.
     - Only lower case letters are valid; upper case letters are not allowed.
     - Only the following special characters are allowed: space, (\*), (+), (-), (.), (/). (\), (\), (\), (\), (\).
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and a message prompts you to save the changes.
5. Press Y to save the changes.
   - The computer reboots.

### Deleting or changing an existing system setup password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

To enter the System Setup, press F2 immediately after a power-on or reboot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
The **System Security** screen is displayed.

2 In the **System Security** screen, verify that **Password Status** is **Unlocked**.

3 Select **System Password**, alter or delete the existing system password and press Enter or Tab.

4 Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

   ✋ **NOTE:** If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.

5 Press Esc and a message prompts you to save the changes.

6 Press Y to save the changes and exit from System Setup.

   The computer reboot.
This chapter details the supported operating systems along with instructions on how to install the drivers.

Topics:

• Replacement media options
• Operating system
• Downloading the audio driver
• Downloading the graphics driver
• Downloading the USB 3.0 driver
• Downloading the Wi-Fi driver
• Downloading the media-card reader driver
• Downloading the fingerprint reader driver
• Downloading the chipset driver
• Downloading the network driver
• Device drivers

Replacement media options

Dell Recovery Environment allows customers to restore to the factory state only on factory installed Windows 10 systems. For more information, see knowledge base article 298453 at www.dell.com/support.

Resource DVD

The Resource DVD contains system drivers and utilities.

**NOTE:** The Resource DVD is no longer shipped with the system. Customers should be encouraged to download the latest drivers from www.dell.com/support. In case of situations where a customer is not able to go online or customer insists on receiving the Resource DVD, technical support agents may dispatch the DVD, post approval from L2/RS.

Once the user passes the welcome screen, the Resource DVD layout is displayed in a custom browser window. The Resource DVD automatically detects the installed hardware and selects the specific hardware for the computer.

Installing drivers using the resource DVD

Browse the driver list or select other options (for example-Utilities) in the browser, which displays the available files. Once you click an item, the installation page is displayed. Click the **Extract** or **Install** button to extract the appropriate driver or utility file(s) to begin the installation. Follow the on-screen instructions to install the driver.

Operating system

This computer is shipped with:

• Windows 10 Home 64-bit
Windows 10 Professional 64-bit

**Downloading the audio driver**

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.
   
   ![NOTE: Review on-screen instructions for browser-specific instructions.]

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.
   
   ![NOTE: Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.]

13. For manual download and installation, click **Category**.
14. Click **Audio** in the drop-down list.
15. Click **Download** to download the audio driver for your computer.
16. After the download is complete, navigate to the folder where you saved the audio driver file.
17. Double-click the audio driver file icon and follow the instructions on the screen to install the driver.

### Table 31. Audio controller in device manager

<table>
<thead>
<tr>
<th>Before installation</th>
<th>After installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Audio inputs and outputs" /></td>
<td><img src="image2" alt="Audio inputs and outputs" /></td>
</tr>
<tr>
<td>Speakers / Headphones (Realtek Audio)</td>
<td>Microphone Array (Realtek Audio)</td>
</tr>
<tr>
<td>Speakers / Headphones (Realtek Audio)</td>
<td></td>
</tr>
</tbody>
</table>

**Downloading the graphics driver**

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.
   
   ![NOTE: Review on-screen instructions for browser-specific instructions.]

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
Select a location to save the files.

If prompted, approve requests from User Account Control to make changes on the system.

The application installs all drivers and updates identified.

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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.
5. Click the Detect Drivers button.
6. Review and agree to the Terms and Conditions to use SupportAssist, then click Continue.
7. If necessary, your computer starts to download and install SupportAssist.

**NOTE:** Review on-screen instructions for browser-specific instructions.

8. Click View Drivers for My System.
9. Click Download and Install to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from User Account Control to make changes on the system.
12. The application installs all drivers and updates identified.

**NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click Category.
14. Click Chipset in the drop-down list.
15. Click Download to download the USB 3.0 driver for your computer.
16. After the download is complete, navigate to the folder where you saved the USB 3.0 driver file.
17. Double-click the USB 3.0 driver file icon and follow the instructions on the screen to install the driver.

## Downloading the USB 3.0 driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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.
5. Click the Detect Drivers button.
6. Review and agree to the Terms and Conditions to use SupportAssist, then click Continue.
7. If necessary, your computer starts to download and install SupportAssist.

**NOTE:** Review on-screen instructions for browser-specific instructions.

8. Click View Drivers for My System.
9. Click Download and Install to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from User Account Control to make changes on the system.
12. The application installs all drivers and updates identified.

**NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

13. For manual download and installation, click Category.
14. Click Video in the drop-down list.
15. Click Download to download the graphics driver for your computer.
16. After the download is complete, navigate to the folder where you saved the graphics driver file.
17. Double-click the graphics driver file icon and follow the instructions on the screen to install the driver.

## Downloading the Wi-Fi driver

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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.
5. Click the Detect Drivers button.
6. Review and agree to the Terms and Conditions to use SupportAssist, then click Continue.
7. If necessary, your computer starts to download and install SupportAssist.

**NOTE:** Review on-screen instructions for browser-specific instructions.

8. Click View Drivers for My System.
Click **Download and Install** to download and install all driver updates detected for your computer.

Select a location to save the files.

If prompted, approve requests from **User Account Control** to make changes on the system.

The application installs all drivers and updates identified.

**NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

For manual download and installation, click **Category**.

Click **Network** in the drop-down list.

Click **Download** to download the Wi-Fi driver for your computer.

After the download is complete, navigate to the folder where you saved the Wi-Fi driver file.

Double-click the Wi-Fi driver file icon and follow the instructions on the screen to install the driver.

**Downloading the media-card reader driver**

1. Turn on your computer.
2. Go to [www.dell.com/support](http://www.dell.com/support).
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

**NOTE:** Review on-screen instructions for browser-specific instructions.

8. Click **View Drivers for My System**.
9. Click **Download and Install** to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from **User Account Control** to make changes on the system.
12. The application installs all drivers and updates identified.

**NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

For manual download and installation, click **Category**.

13. Click **Chipset** in the drop-down list.
14. Click **Download** to download the media-card reader driver for your computer.
15. After the download is complete, navigate to the folder where you saved the media-card reader driver file.
16. Double-click the media-card reader driver file icon and follow the instructions on the screen to install the driver.

**Downloading the fingerprint reader driver**

1. Turn on your computer.
2. Go to [www.dell.com/support](http://www.dell.com/support).
3. 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**.
5. Click the **Detect Drivers** button.
6. Review and agree to the Terms and Conditions to use **SupportAssist**, then click **Continue**.
7. If necessary, your computer starts to download and install **SupportAssist**.

**NOTE:** Review on-screen instructions for browser-specific instructions.
Click View Drivers for My System.

Click Download and Install to download and install all driver updates detected for your computer.

Select a location to save the files.

If prompted, approve requests from User Account Control to make changes on the system.

The application installs all drivers and updates identified.

**NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

For manual download and installation, click Category.

Click Security in the drop-down list.

Click Download to download the fingerprint reader driver for your computer.

After the download is complete, navigate to the folder where you saved the fingerprint reader driver file.

Double-click the fingerprint reader file icon and follow the instructions on the screen to install the driver.

**Downloading the chipset driver**

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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.
5. Click the Detect Drivers button.
6. Review and agree to the Terms and Conditions to use SupportAssist, then click Continue.
7. If necessary, your computer starts to download and install SupportAssist.

   **NOTE:** Review on-screen instructions for browser-specific instructions.

8. Click View Drivers for My System.
9. Click Download and Install to download and install all driver updates detected for your computer.
10. Select a location to save the files.
11. If prompted, approve requests from User Account Control to make changes on the system.
12. The application installs all drivers and updates identified.

   **NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.

For manual download and installation, click Category.

Click Chipset in the drop-down list.

Click Download to download the chipset driver for your computer.

After the download is complete, navigate to the folder where you saved the appropriate chipset driver file.

Double-click the chipset driver file icon and follow the instructions on the screen to install the driver.

**Downloading the network driver**

1. Turn on your computer.
2. Go to www.dell.com/support.
3. 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.
5. Click the Detect Drivers button.
6. Review and agree to the Terms and Conditions to use SupportAssist, then click Continue.
7. If necessary, your computer starts to download and install SupportAssist.
8 Click **View Drivers for My System**.

9 Click **Download and Install** to download and install all driver updates detected for your computer.

10 Select a location to save the files.

11 If prompted, approve requests from **User Account Control** to make changes on the system.

12 The application installs all drivers and updates identified.

**NOTE:** Review on-screen instructions for browser-specific instructions.

13 For manual download and installation, click **Category**.

14 Click **Network** in the drop-down list.

15 Click **Download** to download the network driver for your computer.

16 After the download is complete, navigate to the folder where you saved the network driver file.

17 Double-click the network driver file icon and follow the instructions on the screen to install the driver.

**NOTE:** Not all files can be installed automatically. Review the installation summary to identify if manual installation is necessary.
Device drivers

Intel Chipset Software Installation Utility

In the Device Manager, check if the chipset driver is installed. Install the Intel chipset updates from www.dell.com/support.
Intel HD Graphics driver

In the Device Manager, check if the video driver is installed. Install the video driver update from www.dell.com/support.

Intel Serial IO driver

In the Device Manager, check if the Intel Serial IO driver is installed. Install the driver updates from www.dell.com/support.
System devices
  • ACPI Fixed Feature Button
  • ACPI Lid
  • ACPI Power Button
  • ACPI Processor Aggregator
  • ACPI Sleep Button
  • ACPI Thermal Zone
  • Charge Arbitration Driver
  • Composite Bus Enumerator
  • Dell Diag Control Device
  • Dell System Analyzer Control Device
  • High precision event timer
  • Intel(R) 100 Series/C230 Series Chipset Family LPC Controller (QM175) - A153
  • Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #1 - A110
  • Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #9 - A118
  • Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
  • Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
  • Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
  • Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Generic Participant
  • Intel(R) Dynamic Platform and Thermal Framework Manager
  • Intel(R) Dynamic Platform and Thermal Framework Multi-Chip Discrete Graphics (DGFX) Participant
  • Intel(R) Dynamic Platform and Thermal Framework Multi-Chip Discrete Graphics (DGFX) Participant
  • Intel(R) Dynamic Platform and Thermal Framework Multi-Chip Package Participant
  • Intel(R) Dynamic Platform and Thermal Framework Processor Participant
  • Intel(R) Integrated Sensor Solution
  • Intel(R) Management Engine Interface
  • Intel(R) Power Engine Plug-in
  • Intel(R) Serial I2C Host Controller - A160
  • Intel(R) Serial I2C Host Controller - A161
  • Intel(R) Smart Sound Technology (Intel(R) SST) Audio Controller
  • Intel(R) Smart Sound Technology (Intel(R) SST) OED
  • Intel(R) Software Guard Extensions Device
  • Intel(R) Virtual Buttons
  • Intel(R) Xeon(R) E3 - 1200 v6/7th Gen Intel(R) Core(TM) Host Bridge/DRAM Registers - 5910
  • Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901
  • Legacy device
  • Microsoft ACPI-Compliant Embedded Controller
  • Microsoft ACPI-Compliant System
  • Microsoft System Management BIOS Driver
  • Microsoft UEFI-Compliant System
  • Microsoft Virtual Drive Enumerator
  • Microsoft Windows Management Interface for ACPI
  • Microsoft Windows Management Interface for ACPI
  • NDIS Virtual Network Adapter Enumerator
  • Numeric data processor
  • PCI Express Root Complex
  • Plug and Play Software Device Enumerator
  • Programmable interrupt controller
  • Remote Desktop Device Redirector Bus
  • System CMOS/real time clock
  • System timer
  • UM Bus Root Bus Enumerator
Intel Trusted Execution Engine Interface

In the Device Manager, check if the Intel Trusted Execution Engine Interface driver is installed. Install the driver update from www.dell.com/support.
System devices

- ACPI Fixed Feature Button
- ACPI Lid
- ACPI Power Button
- ACPI Processor Aggregator
- ACPI Sleep Button
- ACPI Thermal Zone
- Charge Arbitration Driver
- Composite Bus Enumerator
- Dell Diag Control Device
- Dell System Analyzer Control Device
- High precision event timer
- Intel(R) 100 Series/C230 Series Chipset Family LPC Controller (QM175) - A153
- Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #1 - A110
- Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #9 - A118
- Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
- Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
- Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
- Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Manager
- Intel(R) Dynamic Platform and Thermal Framework Multi-Chip Package Participant
- Intel(R) Dynamic Platform and Thermal Framework Processor Participant
- Intel(R) Integrated Sensor Solution
- Intel(R) Management Engine Interface
- Intel(R) Power Engine Plug-in
- Intel(R) Serial IO I2C Host Controller - A160
- Intel(R) Serial IO I2C Host Controller - A161
- Intel(R) Smart Sound Technology (Intel(R) SST) Audio Controller
- Intel(R) Smart Sound Technology (Intel(R) SST) OED
- Intel(R) Software Guard Extensions Device
- Intel(R) Virtual Buttons
- Intel(R) Xeon(R) E3 - 1200 v6/7th Gen Intel(R) Core(TM) Host Bridge/DRAM Registers - 5910
- Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901

Legacy device

- Microsoft ACPI-Compliant Embedded Controller
- Microsoft ACPI-Compliant System
- Microsoft System Management BIOS Driver
- Microsoft UEFI-Compliant System
- Microsoft Virtual Drive Enumerator
- Microsoft Windows Management Interface for ACPI
- Microsoft Windows Management Interface for ACPI
- NDIS Virtual Network Adapter Enumerator
- Numeric data processor
- PCI Express Root Complex
- Plug and Play Software Device Enumerator
- Programmable interrupt controller
- Remote Desktop Device Redirector Bus
- System CMOS/real time clock
- System timer
- UMBS root bus enumerator
Intel Virtual Button driver

In the Device Manager, check if the Intel Virtual Button driver is installed. Install the driver updates from www.dell.com/support.
System devices
- ACPI Fixed Feature Button
- ACPI Lid
- ACPI Power Button
- ACPI Processor Aggregator
- ACPI Sleep Button
- ACPI Thermal Zone
- Charge Arbitration Driver
- Composite Bus Enumerator
- Dell Diag Control Device
- Dell System Analyzer Control Device
- High precision event timer
- Intel(R) 100 Series/C230 Series Chipset Family LPC Controller (QM175) - A153
- Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #1 - A110
- Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #9 - A118
- Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #5 - A114
- Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
- Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
- Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Generic Participant
- Intel(R) Dynamic Platform and Thermal Framework Manager
- Intel(R) Dynamic Platform and Thermal Framework Multi-Chip Package Participant
- Intel(R) Dynamic Platform and Thermal Framework Processor Participant
- Intel(R) Integrated Sensor Solution
- Intel(R) Management Engine Interface
- Intel(R) Power Engine Plug-in
- Intel(R) Serial IO I2C Host Controller - A160
- Intel(R) Serial IO I2C Host Controller - A161
- Intel(R) Smart Sound Technology (Intel(R) SST) Audio Controller
- Intel(R) Smart Sound Technology (Intel(R) SST) OED
- Intel(R) Software Guard Extensions Device
- Intel(R) Virtual Buttons
- Intel(R) Xeon(R) E3 - 1200 v6/7th Gen Intel(R) Core(TM) Host Bridge/DRAM Registers - 5910
- Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901
- Legacy device
- Microsoft ACPI-Compliant Embedded Controller
- Microsoft ACPI-Compliant System
- Microsoft System Management BIOS Driver
- Microsoft UEFI-Compliant System
- Microsoft Virtual Drive Enumerator
- Microsoft Windows Management Interface for ACPI
- Microsoft Windows Management Interface for ACPI
- NDIS Virtual Network Adapter Enumerator
- Numeric data processor
- PCI Express Root Complex
- Plug and Play Software Device Enumerator
- Programmable interrupt controller
- Remote Desktop Device Redirector Bus
- System CMOS/real time clock
- System timer
- UMBus Root Bus Enumerator
## Intel Wi-Fi and Bluetooth drivers

In the Device Manager, check if the network card driver is installed. Install the driver updates from [www.dell.com/support](http://www.dell.com/support).

### Table 32. Network adapter in device manager

<table>
<thead>
<tr>
<th>Before installation</th>
<th>After installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Network adapters" /></td>
<td><img src="image2" alt="Network adapters" /></td>
</tr>
</tbody>
</table>

In the Device Manager, check if the Bluetooth driver is installed. Install the driver updates from [www.dell.com/support](http://www.dell.com/support).

### Table 33. Bluetooth driver in device manager

<table>
<thead>
<tr>
<th>Before installation</th>
<th>After installation</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Bluetooth" /></td>
<td><img src="image4" alt="Bluetooth" /></td>
</tr>
</tbody>
</table>
Contacting Dell

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.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Go to Dell.com/support.
2. Select your support category.
3. Verify your country or region in the Choose a Country/Region drop-down list at the bottom of the page.
4. Select the appropriate service or support link based on your need.