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 Working on your computer

Turning off your — Windows ................................................................. 7
Turning off your computer — Windows 8 .............................................. 7
Turning off your computer — Windows 7 .............................................. 7
Before working inside your computer ..................................................... 7
Safety instructions ................................................................................. 8
After working inside your computer ...................................................... 8

2 Disassembly and reassembly

Recommended tools .............................................................................. 10
Screw size list .......................................................................................... 10
Subscriber Identification Module (SIM) card ........................................... 11
  Removing SIM card or SIM card tray .................................................... 11
  Replacing SIM card ............................................................................ 11
  Removing dummy SIM card tray ......................................................... 11
Base cover .............................................................................................. 12
  Removing base cover .......................................................................... 12
  Installing base cover .......................................................................... 14
Battery .................................................................................................... 14
  Lithium-ion battery precautions ......................................................... 14
  Removing battery ................................................................................ 14
  Installing battery .............................................................................. 15
PCIe Solid State Drive (SSD) .................................................................. 15
  Removing PCIe SSD .......................................................................... 15
  Installing PCIe SSD .......................................................................... 16
Speaker .................................................................................................. 17
  Removing speaker module .................................................................. 17
  Installing speaker module ................................................................... 18
Coin cell battery .................................................................................... 18
  Removing the coin cell battery ........................................................... 18
  Installing coin cell battery .................................................................. 19
WWAN card ............................................................................................ 19
  Removing WWAN card ...................................................................... 19
  Installing WWAN card ...................................................................... 20
WLAN card ............................................................................................ 20
  Removing WLAN card ...................................................................... 20
  Installing WLAN card ...................................................................... 21
Memory modules .................................................................................... 22
  Removing memory module ................................................................ 22
  Installing memory module ................................................................ 22
Heat sink ................................................................................................. 23
  Removing heat sink assembly .............................................................. 23
  Installing heat sink assembly .............................................................. 23
## System Setup

- Boot menu .................................................................................................................................................. 46
- Navigation keys ......................................................................................................................................... 47
- System setup options ................................................................................................................................. 47
- General screen options ............................................................................................................................... 47
- System Configuration screen options ....................................................................................................... 48
- Video screen options .................................................................................................................................. 50
- Security screen options ............................................................................................................................... 50
- Secure Boot screen options ....................................................................................................................... 52
- Intel software guard extensions screen options ....................................................................................... 53
- Performance screen options ..................................................................................................................... 53

---

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED board</td>
<td>24</td>
</tr>
<tr>
<td>Removing LED board</td>
<td>24</td>
</tr>
<tr>
<td>Installing LED board</td>
<td>25</td>
</tr>
<tr>
<td>Smart card module</td>
<td>25</td>
</tr>
<tr>
<td>Removing smart card cage</td>
<td>25</td>
</tr>
<tr>
<td>Installing smart card cage</td>
<td>26</td>
</tr>
<tr>
<td>Touchpad buttons board</td>
<td>27</td>
</tr>
<tr>
<td>Removing touchpad buttons board</td>
<td>27</td>
</tr>
<tr>
<td>Installing touchpad buttons board</td>
<td>28</td>
</tr>
<tr>
<td>Power connector port</td>
<td>28</td>
</tr>
<tr>
<td>Removing power connector port</td>
<td>28</td>
</tr>
<tr>
<td>Installing power connector port</td>
<td>29</td>
</tr>
<tr>
<td>Display Assembly</td>
<td>29</td>
</tr>
<tr>
<td>Removing display assembly—with Touch</td>
<td>30</td>
</tr>
<tr>
<td>Installing display assembly—with touch</td>
<td>31</td>
</tr>
<tr>
<td>Display Bezel</td>
<td>31</td>
</tr>
<tr>
<td>Removing display bezel</td>
<td>32</td>
</tr>
<tr>
<td>Installing display bezel</td>
<td>32</td>
</tr>
<tr>
<td>LCD panel</td>
<td>33</td>
</tr>
<tr>
<td>Removing LCD panel</td>
<td>33</td>
</tr>
<tr>
<td>Installing LCD panel</td>
<td>34</td>
</tr>
<tr>
<td>Camera</td>
<td>34</td>
</tr>
<tr>
<td>Removing camera</td>
<td>35</td>
</tr>
<tr>
<td>Installing camera</td>
<td>35</td>
</tr>
<tr>
<td>Removing dummy SIM card tray</td>
<td>36</td>
</tr>
<tr>
<td>System board</td>
<td>36</td>
</tr>
<tr>
<td>Removing system board</td>
<td>36</td>
</tr>
<tr>
<td>Installing system board</td>
<td>36</td>
</tr>
<tr>
<td>Keyboard</td>
<td>41</td>
</tr>
<tr>
<td>Removing keyboard assembly</td>
<td>41</td>
</tr>
<tr>
<td>Removing keyboard from keyboard tray</td>
<td>43</td>
</tr>
<tr>
<td>Installing keyboard to keyboard tray</td>
<td>43</td>
</tr>
<tr>
<td>Installing keyboard assembly</td>
<td>43</td>
</tr>
<tr>
<td>Palm rest</td>
<td>44</td>
</tr>
<tr>
<td>Replacing palm rest</td>
<td>44</td>
</tr>
</tbody>
</table>
Power management screen options .......................................................... 54
POST behavior screen options .............................................................. 55
Manageability ....................................................................................... 56
Virtualization support screen options ..................................................... 56
Wireless screen options ........................................................................ 56
Maintenance screen options ................................................................. 57
System logs screen options ................................................................... 57
Updating the BIOS in Windows ................................................................. 58
Updating BIOS using USB flash drive ....................................................... 58
System and setup password ................................................................... 58
  Assigning a system setup password ...................................................... 59
  Deleting or changing an existing system setup password ....................... 59

4 System specifications ......................................................................... 60
  Supported operating systems ................................................................. 60
  Processor specifications ........................................................................ 60
  System specifications ............................................................................ 61
  Memory specifications ........................................................................... 61
  Storage specifications ........................................................................... 61
  Video specifications .............................................................................. 61
  Audio specifications ............................................................................. 62
  Battery specifications ........................................................................... 62
  AC adapter specifications ..................................................................... 63
  Docking options .................................................................................. 63
  Port and connector specifications ......................................................... 63
  Communication specifications ............................................................... 64
  Camera specifications ........................................................................... 64
  Touchpad specifications ....................................................................... 64
  Display specifications .......................................................................... 64
  Physical specifications .......................................................................... 66
  Environmental specifications ................................................................. 67

5 System Setup ..................................................................................... 68
  Boot Sequence .................................................................................... 68
  Navigation keys ................................................................................... 69
  System setup options .......................................................................... 69
  General screen options ....................................................................... 69
  System Configuration screen options .................................................. 70
  Video screen options .......................................................................... 72
  Security screen options ....................................................................... 72
  Secure Boot screen options ................................................................. 74
  Intel software guard extensions screen options ....................................... 75
  Performance screen options ................................................................. 75
  Power management screen options ...................................................... 76
  POST behavior screen options ............................................................. 77
  Manageability ....................................................................................... 78
  Virtualization support screen options .................................................. 78
Wireless screen options..................................................................................................................................................78
Maintenance screen options..............................................................................................................................................79
System logs screen options...............................................................................................................................................79
Updating the BIOS in Windows .......................................................................................................................................80
System and setup password...............................................................................................................................................80
Assigning a system setup password.................................................................................................................................80
Deleting or changing an existing system setup password.................................................................................................81

6 Troubleshooting...............................................................................................................................................................82
Enhanced Pre-Boot System Assessment — ePSA diagnostics..............................................................................................82
Running the ePSA Diagnostics..............................................................................................................................................82

7 Contacting Dell.................................................................................................................................................................83
Working on your computer

Turning off your — Windows

⚠️ CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Click or tap.
2. Click or tap and then click or tap Shut down.

⚠️ NOTE: Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

Turning off your computer — Windows 8

⚠️ CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Turning off your computer:
   - In Windows 8 (using a touch enabled device):
     1. Swipe in from the right edge of the screen, opening the Charms menu and select Settings.
     2. Tap and then tap Shut down.
   - In Windows 8 (using a mouse):
     1. Point to upper-right corner of the screen and click Settings.
     2. Click and then click Shut down.
2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

Turning off your computer — Windows 7

⚠️ CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Click Start.
2. Click Shut Down.

⚠️ NOTE: Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

Before working inside your computer

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer.
3. If the computer is connected to a docking device (docked), undock it.
4. Disconnect all network cables from the computer (if available).
CAUTION: If your computer has an RJ45 port, disconnect the network cable by first unplugging the cable from your computer.

5 Disconnect your computer and all attached devices from their electrical outlets.
6 Open the display.
7 Press and hold the power button for few seconds, to ground the system board.

CAUTION: To guard against electrical shock unplug your computer from the electrical outlet before performing Step # 8.

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

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

Safety instructions

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

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

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.

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

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

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface at the same time as touching the computer to perform any disassembly tasks.

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

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

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

After working inside your computer

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

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

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

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

3 Connect your computer and all attached devices to their electrical outlets.
Turn on your computer.
Disassembly and reassembly

Recommended tools

The procedures in this document require the following tools:

- Phillips #0 screwdriver
- Phillips #1 screwdriver
- Small plastic scribe

Screw size list

Table 1. Latitude 7480 - Screw size list

<table>
<thead>
<tr>
<th>Component</th>
<th>M2.5 x 6.0</th>
<th>M2.5 x 5.0</th>
<th>M2.0 x 5.0</th>
<th>M2.5 x 4.0</th>
<th>M2.0 x 3.0</th>
<th>M2.0 x 2.5</th>
<th>M2.0 x 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back cover</td>
<td>8 (captive screw)</td>
<td></td>
<td></td>
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<tr>
<td>Battery (3-cell)</td>
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<tr>
<td>Battery (4-cell)</td>
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<td>System fan</td>
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<tr>
<td>WWAN card</td>
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<td>ESD bracket</td>
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<td>EDP bracket</td>
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<td>Touchpad buttons</td>
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<tr>
<td>Fingerprint reader</td>
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<tr>
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<td>Smart card reader cage</td>
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<td>2</td>
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<td>Display hinge</td>
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<td>Keyboard support plate</td>
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<tr>
<td>Keyboard</td>
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<td>System board</td>
<td>3</td>
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Removing SIM card or SIM card tray

**NOTE:** SIM card or SIM card tray removal is only available on systems that are shipped with WWAN module. Hence, removing procedure is only applicable for systems that are shipped with WWAN module.

**CAUTION:** Removing the SIM card when the computer is On, may cause data loss or damage the card. Ensure that your computer is turned off or the network connections are disabled.

1. Insert a paperclip or a SIM card removal tool into the pinhole on the SIM card tray [1].
2. Use a scribe to pull the SIM card tray
3. Remove the SIM card, if a SIM card is available from the SIM card tray.

Replacing SIM card

1. Insert a paperclip or a SIM card removal tool into the pinhole on the SIM card tray.
2. Use a scribe to pull the SIM card tray
3. Place on the SIM card on the tray.
4. Insert the SIM card tray into the slot.

Removing dummy SIM card tray

For models shipped with a WWAN card, the SIM card tray must first be removed from the system before removing the system board. To remove the SIM card tray from the system follow the steps outlined in the disassembly section.

**NOTE:** For models shipped with a wireless card only, a dummy SIM card tray must first be removed from the system before removing the system board. The following are the steps for removing the dummy SIM card tray:

1. Push the release latch on the SIM card slot inwards.
2 Slide the dummy SIM card tray out of the system.

**Base cover**

**Removing base cover**

1 Follow the procedure in **Before working inside your computer**.

2 To release the base cover:
   a Loosen the M2.5 x 6.0 captive screws (8) that secure the base cover to the computer [1].

   ✋ **Remember:** Exercise caution when loosening the screws. Angle the screw driver to match the head of the screw to avoid a possible stripped screw head.

   b Use a plastic scribe to release the base cover from the edge and lift it from the computer [2].
3 Lift the base cover from the computer.
Installing base cover

1. Align the base cover tabs to the slots on the edges of the computer.
2. Press the edges of the cover until it clicks into place.
3. Tighten the M2.5 x 6.0 captive screws to secure the base cover to the computer.

   **Remember:** Exercise caution when tightening the screws. Angle the screw driver to match the head of the screw to avoid a possible stripped screw head.
4. Follow the procedure in *After working inside your computer.*

Battery

Lithium-ion battery precautions

**CAUTION:**

- Exercise caution when handling Lithium-ion batteries.
- Discharge the battery as much as possible before removing it from the system. This can be done by disconnecting the AC adapter from the system to allow the battery to drain.
- Do not crush, drop, mutilate, or penetrate the battery with foreign objects.
- Do not expose the battery to high temperatures, or disassemble battery packs and cells.
- Do not apply pressure to the surface of the battery.
- Do not bend the battery.
- Do not use tools of any kind to pry on or against the battery.
- If a battery gets stuck in a device as a result of swelling, do not try to free it as puncturing, bending, or crushing a Lithium-ion battery can be dangerous. In such an instance, the entire system should be replaced. Contact https://www.dell.com/support for assistance and further instructions.
- Always purchase genuine batteries from https://www.dell.com or authorized Dell partners and re-sellers.

Removing battery

1. Follow the procedure in *Before working inside your computer.*
2. Remove the base cover.
3. To remove the battery:
   a. Disconnect the battery cable from the connector on the system board [1].
   b. Remove the M2.0 x 5.0 screws that secure the battery to the computer [2].
   c. Lift the battery from the computer [3].

   **NOTE:** A 3-cell battery has a single screw, and a 4-cell battery has two screws. Hence, the image displayed below is a 4-cell battery.
Installing battery

1. Insert the battery into the slot on the computer.
2. Route the battery cable through the routing clip and connect the battery cable to the connector on the system board.

**NOTE:** Route the battery cable, if the cable at the base of the battery is un routed.
3. Tighten the M2.0 x 5.0 screws to secure the battery to the computer.

**NOTE:** A small battery (3-cell) has a single screw, a larger battery (4-cell) has two screws.

4. Install the base cover
5. Follow the procedure in After working inside your computer.

### PCIe Solid State Drive (SSD)

#### Removing PCIe SSD

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To remove the PCIe SSD:
   a. Loosen the M2.0x3.0 captive screw that secure the SSD bracket [1].
   b. Remove the SSD bracket [2].
Installing PCIe SSD

1. Insert the PCIe SSD card into the connector.
2. Install the SSD bracket over the PCIe SSD card.
   - **NOTE:** When installing the SSD bracket, ensure that the tab on the bracket is held securely with the tab on the palm rest.
   - **NOTE:** Ensure to install the bracket if the system is shipped with bracket.
3. Tighten the M2.0x3.0 screws to secure the SSD bracket.
4. Install the base cover.
5. Follow the procedure in After working inside your computer.
Removing speaker module

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To release the speaker module:
   a. Push the pin to disconnect the speaker cable from the connector on the system board [1].
   
   NOTE: Ensure to unroute the speaker cable from the routing clip.
   
   NOTE: Use a plastic scribe to release the cable from the connector. Do not pull the cable as it may result in breakage.
   
   b. Un-route the speaker cable from the routing clips [2,3].
   c. Remove the tape that secures the speaker cables to the touchpad board [4].

4. To remove the speaker module:
   a. Remove the M2.0x3.0 screws (4) that secure the speaker module to the computer [1].
   b. Lift the speaker module from the computer.

   NOTE: Ensure to un-route the speaker cable from the routing clips.
Installing speaker module

1. Place the speaker module into the slots on the computer.
2. Route the speaker cable through the retention clips on the computer.
3. Connect the speaker cable to the connector on the system board.
4. Install the:
   a. battery
   b. base cover
5. Follow the procedure in After working inside your computer.

Coin cell battery

Removing the coin cell battery

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To remove the coin cell battery:
   a. Disconnect the coin cell battery cable from the connector on the system board [1].
   b. Lift the coin cell battery to release it from the adhesive [2].
Installing coin cell battery

1. Affix the coin cell battery on the slot inside the computer.
2. Route the coin cell battery cable through the routing channel before connecting the cable.
3. Connect the coin cell battery cable to the connector on the system board.
4. Install the:
   a. battery
   b. base cover
5. Follow the procedure in After working inside your computer.

WWAN card

Removing WWAN card

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To remove the WWAN card:
   a. Remove the M2.0 x 3.0 screw that secures the metal bracket to the WWAN card.
   b. Lift the metal bracket that secures the WWAN card.
c Disconnect the WWAN cables from the connectors on the WWAN card with a plastic scribe.

Installing WWAN card
1 Insert the WWAN card into the connector on the system board.
2 Connect the WWAN cables to the connectors on the WWAN card.
3 Place the metal bracket and tighten the M2.0 x 3.0 screw to secure it to the computer.
4 Install the:
   a battery
   b base cover
5 Follow the procedure in After working inside your computer.

NOTE: The IMEI number can also be found on the WWAN card.

WLAN card

Removing WLAN card
1 Follow the procedure in Before working inside your computer.
2 Remove the:
   a base cover
To remove the WLAN card:

a. Remove the M2.0 x 3.0 screw that secures the metal bracket to the WLAN card [1].

b. Lift the metal bracket [2].

c. Disconnect the WLAN cables from the connectors on the WLAN card [3].

d. Remove the WLAN card from the computer [4].

**NOTE:** Ensure NOT to pull the WLAN card more than 35°, to avoid damage to pin.

---

**Installing WLAN card**

1. Insert the WLAN card into the connector on the system board.

2. Connect the WLAN cables to the connectors on the WLAN card.

3. Place the metal bracket and tighten the M2.0 x 3.0 screw to secure it to the computer.

4. Install the:
   a. battery
   b. base cover

5. Follow the procedure in After working inside your computer.
Memory modules

Removing memory module

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To remove the memory module:
   a. Pull the clips securing the memory module until the module snaps-out [1].
   b. Remove the memory module from the connector on the system board [2].

Installing memory module

1. Insert the memory module into the connector until snaps in.
2. Install the:
   a. battery
   b. base cover
3. Follow the procedures in After working inside your computer.
Heat sink

Removing heat sink assembly

Heat sink assembly comprises of heat sink and the system fan.

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To remove the heat sink assembly:

   **NOTE:** To identify the number of screws, see screw list.

   a. Disconnect the fan cable from the system board [1].
   b. Remove the M2.0 x 5.0 screws that secure the heat sink assembly to the system board [2].
   c. Remove the screws in the order of the callout numbers as indicated on the heat sink.
   d. Lift the heat sink assembly from the system board [3].

Installing heat sink assembly

Heat sink assembly comprises of heat sink and the system fan.

1. Align the heat sink assembly with screw holders on the system board.
2. Tighten the M2.0 x 3.0 screws to secure the heat sink assembly to the system board.

**NOTE:** Tighten the screws in the order of the callout numbers [1, 2, 3, 4] as indicated on the heat sink.
Connect the fan cable to the connector on the system board.

Install the:
   a  battery
   b  base cover

Follow the procedure in After working inside your computer.

LED board

Removing LED board

1  Follow the procedure in Before working inside your computer.
2  Remove the:
   a  base cover
   b  battery
3  To remove the LED board:
   a  Disconnect the LED cable from the LED board [1].
   b  Remove the M2.0 x 3.0 screw that secures the LED board to the computer [2].
   c  Lift the LED board from the computer [3].
Installing LED board

1. Insert the LED board into the slot on the computer.
2. Tighten the M2.0 x 3.0 screw to secure the LED board.
3. Connect the LED cable to the LED board.
4. Install the:
   a. battery
   b. base cover
5. Follow the procedure in After working inside your computer.

Smart card module

Removing smart card cage

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
   c. PCIe SSD card
3. To disconnect the smart card cable:
   a. Disconnect the smart card cable [1].

   ![NOTE: Ensure to gently push the connector, to avoid damage to the smart card head.]
   b. Lift the smart card cable that is affixed to the touchpad module [2].

   ![NOTE: Ensure to pull gently to release it with adhesive tape.]
To remove the smart card cage:

1. **NOTE:** To identify the number of screws, see screw list
2. a. Remove the M2.0 x 3.0 screws (2) that secure the smart card cage to the computer [1].
   b. Slide and lift the smart card cage from the computer [2].

---

**Installing smart card cage**

1. Slide the smart card cage into the slot to align with the tabs on the computer.
2. Tighten the M2.0 x 3.0 screws to secure the smart card cage to the computer.
3. Affix the smart card cable and connect it to the connector on the computer.
4. Install the:
   a. PCIe SSD card
   b. battery
   c. base cover
5. Follow the procedure in After working inside your computer.
Touchpad buttons board

Removing touchpad buttons board

1. Follow the procedure in Before working inside your computer.

2. Remove the:
   a. base cover
   b. battery
   c. speaker

3. To disconnect the smart card cable:
   a. Disconnect the smart card cable [1].
   b. Lift the smart card cable that is affixed to the computer [2] to reveal the touchpad buttons board cable.
   c. Remove the adhesive tape that secures the speaker cable to the touchpad panel [3].

4. To remove the touchpad buttons board:
   a. Disconnect the touchpad buttons board cable from the touchpad board [1].

   • **NOTE:** The touchpad buttons board cable is below the smart card cable. Ensure to lift the latch, to release the touchpad button board cable.

   b. Remove M2.0 x 3.0 screws (2) that secure the touchpad buttons board [2].

   • **NOTE:** To identify the screws, see screw list.

   c. Lift the touchpad buttons board from the computer [3].
Installing touchpad buttons board

1. Insert the touchpad buttons board into the slot to align the tabs with the grooves on the computer.
2. Tighten the M2.0 x 3.0 screws to secure the touchpad buttons board to the computer.
3. Connect the touchpad buttons board cable to the connector on the touchpad board.
4. Affix the smart card cable and connect it to the connector on the computer.
5. Install the:
   a. speaker
   b. battery
   c. base cover
6. Follow the procedure in After working inside your computer.

Power connector port

Removing power connector port

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
3. To remove the power connector port:
   a. Disconnect the power connector port cable from the system board [1].
NOTE: Ensure to remove the adhesive tape that covers the connector.

NOTE: Use a plastic scribe to release the cable from the connector. Do not pull the cable as it may result in breakage.

b Remove the M2.0x3.0 screw (1) to release the metal bracket on the power connector port [2].
c Lift the metal bracket from the computer [3].
d the power connector port from the computer [4].

Installing power connector port

1 Install the power connector port into the slot on the computer.
2 Place the metal bracket on the power connector port.
3 Tighten the M2.0x3.0 screw to secure the power connector port to the computer.
4 Connect the power connector port cable to the connector on the system board.
5 Install the:
   a battery
   b base cover
6 Follow the procedure in After working inside your computer.

Display Assembly
Removing display assembly—with Touch

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
   c. WLAN card
   d. WWAN card

   | NOTE: To identify the number of screws, see screw list |

3. To remove the display assembly:
   a. Unroute the WLAN and WWAN cables from the routing channels [1].
   b. Disconnect the IR camera cable from the system board [2].
   c. Remove the M2.0x3.0 screws that secure the eDP bracket [3].
   d. Lift the eDP bracket from the eDP cable [4].
   e. Lift the eDP cable to disconnect it from the connector on the system board [5].
   f. Unroute the eDP cable from the routing channel [6].

4. To remove the display assembly:
   a. Open the display of the computer and lay it on a flat surface at 180 degree angle
   b. Remove the M2.5 x 4.0 screws that secure the display hinge to the display assembly [1].
   c. Lift the display assembly from the computer.
Installing display assembly—with touch

1. Place the base of the computer on a plane surface of a table and position it closer to the edge of the table.
2. Install the display assembly to align it with the display hinge holders on the system.
3. Holding the display assembly, tighten the M2.5 x 4.0 screws to secure the display hinges on the system display assembly with the system unit.
4. Affix the tapes to secure the eDP cable (display cable).
5. Connect the eDP cable to the connector on the system board.
6. Install the eDP metal bracket on the eDP cable and tighten the M2.0x3.0 screws.
7. Connect the IR camera cable to the system board.
8. Route the WLAN and WWAN cables through the routing channels.
9. Install the:
   a. WLAN card
   b. WWAN card
   c. battery
   d. base cover
10. Follow the procedure in After working inside your computer.

Display Bezel
Removing display bezel

**NOTE:** The display bezel removal procedure is applicable only for non-touch systems.

1. Follow the procedure in *Before working inside your computer*.
2. Remove the:
   a. base cover
   b. battery
   c. WLAN card
   d. WWAN card
   e. display assembly
3. To remove the display bezel:
   a. Use a plastic scribe to loosen the bottom edge of the display [1].
   b. Loosen the tabs on the edges of the display [2].

   **NOTE:** Adhesive is used to secure the display bezel to the display panel.

4. Remove the display bezel from the display assembly.

Installing display bezel

**NOTE:** The display bezel installation procedure is applicable only for non-touch systems.

1. Place the display bezel on the display assembly.
2. Press the edges of the display bezel until it clicks onto the display assembly.

   **NOTE:** Adhesive is used to secure the display bezel to the display panel.

3. Install the:
   a. display assembly
   b. WLAN card
   c. WWAN card
   d. battery
   e. base cover
4. Follow the procedure in *After working inside your computer*.
Removing LCD panel

NOTE: The LCD panel removal procedure is applicable only for touch systems.

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
   c. WLAN card
   d. WWAN card
   e. display assembly
3. To remove the LCD panel:
   a. Use a plastic scribe to loosen the edges of the LCD panel.
   b. Flip the LCD screen over from the top.
   c. Peel the adhesive tape [1], Mylar shield [2].
   d. Release the latch [3], and disconnect the eDP cable [4].
   e. Peel the adhesive tape [5], and disconnect the IR cable [6].

b. Flip the LCD screen over from the top.
c. Peel the adhesive tape [1], Mylar shield [2].
d. Release the latch [3], and disconnect the eDP cable [4].
e. Peel the adhesive tape [5], and disconnect the IR cable [6].
4. Remove the display bezel from the display assembly.

Installing LCD panel

**NOTE:** The LCD panel installation procedure is applicable only for touch systems.

1. Place the LCD panel on the display assembly.
2. Reconnect the IR cable and eDP cable.
3. Replace the adhesive tapes and the Mylar shield.
4. Press the edges of the LCD panel until it clicks into the display assembly.
5. Install the:
   a. display assembly
   b. WLAN card
   c. WWAN card
   d. battery
   e. base cover
6. Follow the procedure in After working inside your computer.

Camera
Removing camera

The removal procedure of the camera is only for a touch display.

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. WLAN card
   c. WWAN card
   d. battery
   e. display assembly
   f. display bezel
3. To remove the camera module:
   a. Lift the plastic bracket to disconnect the camera cable [1].
   b. Lift the camera from the display [2].

Installing camera

The installation procedure is applicable only for systems shipping with touch display assembly.

1. Insert the camera module into the slot on the display assembly.
2. Connect the camera cable.
3 Install the:
   a display bezel
   b display assembly
   c WLAN card
   d WWAN card
   e battery
   f base cover

4 Follow the procedure in After working inside your computer.

Removing dummy SIM card tray

For models shipped with a WWAN card, the SIM card tray must first be removed from the system before removing the system board. To remove the SIM card tray from the system, follow the steps outlined in the disassembly section of the Field Service Manual. For models shipped with a wireless card only, a dummy SIM card tray must first be removed from the system before removing the system board. The following are the steps for removing the dummy SIM card tray.

1 Push the release latch located on the SIM card slot inwards.

2 Slide the dummy SIM card tray out of the system.

System board

Removing system board

1 Follow the procedure in Before working inside your computer.
   1 If your computer is shipped with a WWAN card, then the removal of a blank SIM card tray is a requirement.

2 Remove the:
   a SIM card
   b dummy SIM card tray
   c base cover
   d battery
   e memory module
   f PCIe SSD
   g WLAN card
   h WWAN card
   i heat sink assembly

2 To identify the screws, see screw list

3 Remove the M2.0 x 3.0 screws that secure memory module bracket to the system board [1].
To disconnect the eDP cable:
   a  Un route the WLAN and WWAN cables from the routing channels [1].
   b  Disconnect the IR cable from the system board [2].
   c  Remove the M2.0 x 3.0 screw that secures the eDP cable [3].
   d  Remove the eDP cable bracket [4].
   e  Disconnect the eDP cable from the system board [5].
   f  Un route the eDP cable from the routing clip [6].
To disconnect the cables:

**NOTE:** To disconnect the speaker, LED board, coin cell battery and the power connector port cables, use a plastic scribe to release the cables from the connectors. Do not pull the cable as it may result in breakage.

- a. speaker cable [1]
- b. LED board cable [2]
- c. coin cell battery cable [3]
- d. touchpad cable and USH board cable [4]
- e. power connector port [5]
To remove the system board:

a. Remove the USB type-C bracket.

   Image does not display the USB type-C bracket removal.

b. Remove the M2.0 x 5.0 screws that secure the system board [1].

c. Lift the system board away from the computer.
7. Remove the M2.0x5.0 screws that secure the USB Type-C bracket.

8. Flip the system board, peel off the tapes securing the bracket and remove the USB Type-C port from the system board.
Installing system board

1. Place the USB Type-C port along with the bracket in the slot on the system board.
2. Affix the tape to secure the Type-C port bracket.
3. Flip the system board and tighten the M2.0x5.0 screws to secure the USB type-C port.
4. Align the system board with the screw holders on the computer.
5. Tighten the M2.0 x 5.0 screws to secure the system board to the computer.
6. Connect the speaker, power connector, LED board, touchpad, and USH cables to the connectors on the system board.
7. Connect the eDP cable to the connector on the system board.
8. Place the metal bracket over the eDP cable and tighten the M2.0 x 5.0 screws to secure it.
9. Remove the metal bracket from the memory module connectors of the system board that was removed.
10. Place the metal bracket over the memory module connectors and tighten the M2.0 x 3.0 screws to secure it to the computer.

![Image](image)

**NOTE:** If your computer has a WWAN card, then SIM card tray installation is a requirement.

11. Install the:
   a. coin cell battery
   b. heat sink
   c. WLAN card
   d. WWAN card
   e. SSD card
   f. memory module
   g. speaker
   h. battery
   i. base cover

12. Follow the procedure in After working inside your computer.

Keyboard

Removing keyboard assembly

**NOTE:** The keyboard and the keyboard tray together are called the keyboard assembly.

1. Follow the procedure in Before working inside your computer.
2. Remove:
   a. base cover
3 Disconnect the cables from the palmrest end:
   a  keyboard cable [1]
   b  keyboard backlight cable [2]
   c  Touchpad and USH board cables [3,4]

4 To remove the keyboard assembly:
   - **NOTE:** To identify the screws, see screw list
     a  Remove the M2.0 x 2.5 screws that secure the keyboard [1].
     b  Lift the keyboard assembly from the chassis [2].
Removing keyboard from keyboard tray

1. Follow the procedure in Before working inside your computer.
2. Remove the keyboard assembly
3. Remove the M2.0 x 2.0 screws that secure the keyboard to the keyboard assembly [1].
4. Lift the keyboard away from the keyboard tray [2].

Installing keyboard to keyboard tray

1. Align the keyboard with the screw holders on the keyboard tray.
2. Tighten the M2.0 x 2.0 screws to secure the keyboard to the keyboard tray.
3. Install the keyboard assembly.

Installing keyboard assembly

**NOTE:** The keyboard and the keyboard tray together are called the keyboard assembly.

1. Align the keyboard assembly with the screw holders on the computer.
2. Tighten the M2.0 x 2.5 screws that secure the keyboard to the chassis.
3. Connect the keyboard cable, keyboard backlight cable, and touchpad cable to the connectors on the touchpad buttons board.
4. Install the:
Follow the procedure in After working inside your computer.

**Palm rest**

**Replacing palm rest**

1. Follow the procedure in Before working inside your computer.
2. Remove the:
   a. base cover
   b. battery
   c. memory module
   d. PCIe SSD
   e. WLAN card
   f. WWAN card
   g. power connector port
   h. heat sink assembly
   i. coin cell battery
   j. speaker
   k. display assembly
   l. system board
   m. keyboard
The component you are left with is the palm rest.

3 Replace the palm rest.

4 Install the:
   a keyboard
   b system board
   c display assembly
   d speaker
   e coin cell battery
   f heatsink
   g power connector port
   h WLAN card
   i WWAN card
   j PCIe SSD
   k memory
   l battery
   m base cover

5 Follow the procedure in *After working inside your computer.*
Topics:

- Boot menu
- Navigation keys
- System setup options
- General screen options
- System Configuration screen options
- Video screen options
- Security screen options
- Secure Boot screen options
- Intel software guard extensions screen options
- Performance screen options
- Power management screen options
- POST behavior screen options
- Manageability
- Virtualization support screen options
- Wireless screen options
- Maintenance screen options
- System logs screen options
- Updating the BIOS in Windows
- Updating BIOS using USB flash drive
- 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:

- Legacy Boot:
  - Internal HDD
  - Onboard NIC
- 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>
<tr>
<td>Tab</td>
<td>Moves to the next focus area.</td>
</tr>
</tbody>
</table>

**NOTE:** For the standard graphics browser only.

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.

System setup options

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

General screen options

This section lists the primary hardware features of your computer.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Information</td>
<td>This section lists the primary hardware features of your computer.</td>
</tr>
<tr>
<td></td>
<td>• System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, Express Service Code, the Signed Firmware update—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A Size, DIMM B Size,</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, LOM MAC Address, Passthrough MAC address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Wi-Fi Device, WiGig Device, Cellular Device, 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 change the order in which the computer attempts to find an operating system.</td>
</tr>
<tr>
<td></td>
<td>• Diskette Drive</td>
</tr>
<tr>
<td></td>
<td>• Internal HDD</td>
</tr>
<tr>
<td></td>
<td>• USB Storage Device</td>
</tr>
<tr>
<td></td>
<td>• CD/DVD/CD-RW Drive</td>
</tr>
<tr>
<td></td>
<td>• Onboard NIC</td>
</tr>
<tr>
<td>Boot sequence options</td>
<td>• Windows boot manager</td>
</tr>
<tr>
<td></td>
<td>• WindowsIns</td>
</tr>
</tbody>
</table>
Option  | Description
--- | ---
Boot list options  | • Legacy
• UEFI—selected by default

Advanced Boot Options  | This option allows you the legacy option ROMs to load. By default, the Enable Legacy Option ROMs is disabled. Enable Attempt Legacy Boot is disabled by default.

UEFI boot path security  | • Always, except internal HDD
• Always
• Never

Date/Time  | Allows you to change the date and time.

System Configuration screen options

Option  | Description
--- | ---
Integrated NIC  | Allows you to configure the integrated network controller. The options are:
• Disabled
• Enabled
• Enable UEFI network stack: This option is enabled by default.
• Enabled w/PXE

Parallel Port  | Allows you to configure the parallel port on the docking station. The options are:
• Disabled
• AT: This option is enabled by default.
• PS2
• ECP

Serial Port  | Allows you to configure the integrated serial port. The options are:
• Disabled
• COM1: This option is enabled by default.
• COM2
• COM3
• COM4

SATA Operation  | Allows you to configure the internal SATA hard-drive controller. The options are:
• Disabled
• AHCI
• RAID On: This option is enabled by default.

Drives  | Allows you to configure the SATA drives on board. All drives are enabled by default. The options are:
• SATA-0
• M.2 PCI-e SSD-0
• SATA-2
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMART Reporting</td>
<td>This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self-Monitoring Analysis and Reporting Technology) specification. This option is disabled by default.</td>
</tr>
<tr>
<td></td>
<td>• Enable SMART Reporting</td>
</tr>
<tr>
<td>USB Configuration</td>
<td>This is an optional feature.</td>
</tr>
<tr>
<td></td>
<td>This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices—HDD, memory key, floppy.</td>
</tr>
<tr>
<td></td>
<td>If USB port is enabled, device attached to this port is enabled and available for OS.</td>
</tr>
<tr>
<td></td>
<td>If USB port is disabled, the OS cannot see any device attached to this port.</td>
</tr>
<tr>
<td></td>
<td>The options are:</td>
</tr>
<tr>
<td></td>
<td>• Enable USB Boot Support—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Enable the Thunderbolt ports—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Always Allow dell docks—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Enable External USB Port—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Enable Thunderbolt Boot Support</td>
</tr>
<tr>
<td></td>
<td>• Enable Thunderbolt (and PCIE behind TBT) Preboot</td>
</tr>
<tr>
<td></td>
<td>• Security level-no security</td>
</tr>
<tr>
<td></td>
<td>• Security level-user configuration—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Security level-secure connect</td>
</tr>
<tr>
<td></td>
<td>• Security level- Display port only</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE</strong>: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.</td>
</tr>
<tr>
<td>USB PowerShare</td>
<td>This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port. This option is disabled by default.</td>
</tr>
<tr>
<td>Audio</td>
<td>This field enables or disables the integrated audio controller. By default, the <strong>Enable Audio</strong> option is selected. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Enable Microphone—by default enable</td>
</tr>
<tr>
<td></td>
<td>• Enable Internal Speaker—by default enable</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—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Dim (50%)</td>
</tr>
<tr>
<td></td>
<td>• Bright</td>
</tr>
<tr>
<td>Keyboard Backlight with AC</td>
<td>The Keyboard Backlight with AC option does not affect the main keyboard illumination feature. Keyboard illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. This option is enabled by default.</td>
</tr>
<tr>
<td>Keyboard Backlight Timeout on AC</td>
<td>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:</td>
</tr>
</tbody>
</table>
### Option Description

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 sec—enabled by default</td>
<td></td>
</tr>
<tr>
<td>15 sec</td>
<td></td>
</tr>
<tr>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>1 min</td>
<td></td>
</tr>
<tr>
<td>5 min</td>
<td></td>
</tr>
<tr>
<td>15 min</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td></td>
</tr>
</tbody>
</table>

### 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.

### Unobtrusive Mode

This option, when enabled, pressing Fn+F7 turns off all light and sound emissions in the system. To resume normal operation, press Fn+F7 again. This option is disabled by default.

### Miscellaneous Devices

Allows you to enable or disable the following devices:

- Enable Camera—enabled by default
- Secure Digital (SD) card—enabled by default
- Secure Digital (SD) card boot
- Secure Digital (SD) card read-only-mode

### Video screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD Brightness</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 screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin Password</td>
<td>Allows you to set, change, or delete the administrator (admin) password.</td>
</tr>
</tbody>
</table>

**NOTE:** You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password.

**NOTE:** Successful password changes take effect immediately.
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Password</strong></td>
<td>Allows you to set, change, or delete the system password.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> Successful password changes take effect immediately.</td>
</tr>
<tr>
<td><strong>Internal HDD-2 Password</strong></td>
<td>Allows you to set, change, or delete the administrator password.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> Successful password changes take effect immediately.</td>
</tr>
<tr>
<td><strong>Strong Password</strong></td>
<td>Allows you to enforce the option to always set strong passwords.</td>
</tr>
<tr>
<td></td>
<td>Default Setting: Enable Strong Password is not selected.</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> If Strong Password is enabled, the Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.</td>
</tr>
<tr>
<td><strong>Password Configuration</strong></td>
<td>Allows you to specify the minimum and max password lengths of the Administrator and System passwords.</td>
</tr>
<tr>
<td></td>
<td>• min-4—by default, if you want to change you can increase the number</td>
</tr>
<tr>
<td></td>
<td>• max-32—you can decrease the number</td>
</tr>
<tr>
<td><strong>Password Bypass</strong></td>
<td>Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Reboot bypass</td>
</tr>
<tr>
<td><strong>Password Change</strong></td>
<td>Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.</td>
</tr>
<tr>
<td></td>
<td>Default setting: Allow Non-Admin Password Changes is selected.</td>
</tr>
<tr>
<td><strong>Non-Admin Setup Changes</strong></td>
<td>Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set.</td>
</tr>
<tr>
<td></td>
<td>If disabled the setup options are locked by the admin password.</td>
</tr>
<tr>
<td></td>
<td>Option &quot;allow wireless switch changes&quot; is not selected by default.</td>
</tr>
<tr>
<td><strong>TPM 2.0 Security</strong></td>
<td>Allows you to enable the Trusted Platform Module (TPM) during POST. The options are:</td>
</tr>
<tr>
<td></td>
<td>• UEFI capsule Firmware updates—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• TPM On—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Clear</td>
</tr>
<tr>
<td></td>
<td>• PPI Bypass for Enable Commands</td>
</tr>
<tr>
<td></td>
<td>• PPI Bypass for Disabled Commands</td>
</tr>
<tr>
<td></td>
<td>• Attestation enable—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Key storage enable—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• SHA-256—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled—enabled by default</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Computrace</strong></td>
<td>Allows you to activate or disable the optional Computrace software The options are:</td>
</tr>
<tr>
<td></td>
<td>• Deactivate</td>
</tr>
<tr>
<td></td>
<td>• Disable</td>
</tr>
<tr>
<td></td>
<td>• Activate—enabled by default</td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td>The Activate and Disable options will permanently activate or disable the feature and no further changes are allowed</td>
</tr>
<tr>
<td><strong>CPU XD Support</strong></td>
<td>Allows you to enable the Execute Disable mode of the processor.</td>
</tr>
<tr>
<td></td>
<td>Enable CPU XD Support—enabled by default</td>
</tr>
<tr>
<td><strong>OROM Keyboard Access</strong></td>
<td>Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td></td>
<td>• One Time Enable</td>
</tr>
<tr>
<td></td>
<td>• Disable</td>
</tr>
<tr>
<td></td>
<td>Default setting: Enable</td>
</tr>
<tr>
<td><strong>Admin Setup Lockout</strong></td>
<td>Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: This option is enabled</td>
</tr>
<tr>
<td><strong>Master password lockout</strong></td>
<td>This option is not enabled by default</td>
</tr>
</tbody>
</table>

## Secure Boot screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Secure Boot Enable</strong></td>
<td>This option enables or disables the Secure Boot feature.</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td></td>
<td>Default setting: Enabled</td>
</tr>
<tr>
<td><strong>Expert Key Management</strong></td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• PK—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• KEK</td>
</tr>
<tr>
<td></td>
<td>• db</td>
</tr>
<tr>
<td></td>
<td>• dbx</td>
</tr>
<tr>
<td></td>
<td>If you enable the Custom Mode, the relevant options for PK, KEK, db, and dbx appear. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Save to File—Saves the key to a user-selected file</td>
</tr>
<tr>
<td></td>
<td>• Replace from File—Replaces the current key with a key from a user-selected file</td>
</tr>
<tr>
<td></td>
<td>• Append from File—Adds a key to the current database from a user-selected file</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<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. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td>Default setting:</td>
<td>Enabled</td>
</tr>
<tr>
<td>Enclave Memory Size</td>
<td>This option sets <strong>SGX Enclave Reserve Memory Size</strong>. The options are:</td>
</tr>
<tr>
<td></td>
<td>• 32 MB</td>
</tr>
<tr>
<td></td>
<td>• 64 MB</td>
</tr>
<tr>
<td></td>
<td>• 128 MB—enabled by default</td>
</tr>
</tbody>
</table>

Intel software guard extensions screen options

**Performance screen options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Core Support</td>
<td>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor. The installed processor supports two cores. If you enable Multi-Core Support, two cores are enabled. If you disable Multi-Core Support, one core is enabled.</td>
</tr>
<tr>
<td></td>
<td>• Enable Multi-Core Support</td>
</tr>
<tr>
<td>Default setting:</td>
<td>The option is enabled.</td>
</tr>
<tr>
<td>Intel SpeedStep</td>
<td>Allows you to enable or disable the Intel SpeedStep feature.</td>
</tr>
<tr>
<td></td>
<td>• Enable Intel SpeedStep</td>
</tr>
<tr>
<td>Default setting:</td>
<td>The option is enabled.</td>
</tr>
<tr>
<td>C-States Control</td>
<td>Allows you to enable or disable the additional processor sleep states.</td>
</tr>
<tr>
<td></td>
<td>• C states</td>
</tr>
<tr>
<td>Default setting:</td>
<td>The option is enabled.</td>
</tr>
<tr>
<td>Intel TurboBoost</td>
<td>Allows you to enable or disable the Intel TurboBoost mode of the processor.</td>
</tr>
<tr>
<td></td>
<td>• Enable Intel TurboBoost</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| HyperThread Control           | Allows you to enable or disable the Hyper-Threading in the processor.  

- Disabled  
- Enabled  

Default setting: Enabled is selected. |

## Power management screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| AC Behavior                   | 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. |

| Auto On Time                   | Allows you to set the time at which the computer must turn on automatically. The options are:  

- Disabled  
- Every Day  
- Weekdays  
- Select Days  

Default setting: Disabled |

| USB Wake Support              | Allows you to enable USB devices to wake the system from Standby.  

**NOTE:** 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.  

- Enable USB Wake Support  
- Wake on Dell USB-C dock  

Default setting: The option is disabled. |

| Wake on WLAN                  | Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal.  

Default setting: Disabled |

| Block Sleep                   | This option lets you block entering to sleep (S3 state) in operating system environment.  

Block Sleep (S3 state)  

Default setting: This option is disabled |

| Peak Shift                    | 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. |

| Advanced Battery Charge       | 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 nonwork hours to improve the battery health.  

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. This option is enabled by default.
- 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.

## Sleep mode

- OS Automatic selection—enabled by default
- Force S3

## Type-C connector power

- 7.5 Watts
- 15 Watts—enabled by default

## POST behavior screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adapter Warnings</strong></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><strong>Keypad (Embedded)</strong></td>
<td>Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard. Default setting: Fn Key Only — default. By Numlock</td>
</tr>
<tr>
<td><strong>Mouse/Touchpad</strong></td>
<td>Allows you to define how the system handles mouse and touch pad input. The options are:</td>
</tr>
<tr>
<td></td>
<td>Serial Mouse</td>
</tr>
<tr>
<td></td>
<td>PS2 Mouse</td>
</tr>
<tr>
<td></td>
<td>Touchpad/PS-2 Mouse: This option is enabled by default.</td>
</tr>
<tr>
<td><strong>Numlock Enable</strong></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><strong>Fn Key Emulation</strong></td>
<td>Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature. Enable Fn Key Emulation (default)</td>
</tr>
</tbody>
</table>
### Fn Lock Options
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:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended BIOS</td>
<td>Allows you to create an extra preboot delay. The options are:</td>
</tr>
<tr>
<td>POST Time</td>
<td>• 0 seconds—enabled by default.</td>
</tr>
<tr>
<td>Full Screen Log</td>
<td>• 5 seconds</td>
</tr>
<tr>
<td>Warnings and errors</td>
<td>• Enable Full Screen Logo—not enabled</td>
</tr>
<tr>
<td></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>USB provision</td>
<td>Enable USB provision is not selected by default</td>
</tr>
<tr>
<td>MEBX Hotkey — enabled by default</td>
<td>Allows you to specify whether the MEBx Hotkey function should enable, during the system boot.</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td></td>
<td>Default setting: Disabled</td>
</tr>
</tbody>
</table>

### Virtualization support screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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 screen options

<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>
</tbody>
</table>
### Option Description
- WWAN
- GPS (on WWAN Module)
- WLAN/WiGig
- Bluetooth

All the options are enabled by default.

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

### Wireless Device Enable
Allows you to enable or disable the internal wireless devices.
- WWAN/GPS
- WLAN/WiGig
- Bluetooth

All the options are enabled by default.

**NOTE:** IMEI number for WWAN can be found on the outer box or the WWAN card.

---

## Maintenance screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Tag</td>
<td>Displays the Service Tag of your computer.</td>
</tr>
<tr>
<td>Asset Tag</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>BIOS Downgrade</td>
<td>This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default.</td>
</tr>
<tr>
<td>Data Wipe</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>
<tr>
<td>BIOS Recovery</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>• BIOS Recovery from Hard Drive—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• Always perform integrity check—disabled by default</td>
</tr>
</tbody>
</table>

## System logs screen options

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

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet.

1. **NOTE:** If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re-enabled after the BIOS update is completed.

2. Restart the computer.
3. Go to [Dell.com/support](https://www.dell.com/support).
   - Enter the Service Tag or Express Service Code and click Submit.
   - Click Detect Product and follow the instructions on screen.
4. If you are unable to detect or find the Service Tag, click Choose from all products.
5. Choose the Products category from the list.
   - **NOTE:** Choose the appropriate category to reach the product page
6. Select your computer model and the Product Support page of your computer appears.
7. Click Get drivers and click Drivers and Downloads.
   - The Drivers and Downloads section opens.
8. Click Find it myself.
9. Click BIOS to view the BIOS versions.
10. Identify the latest BIOS file and click Download.
    - The File Download window appears.
11. Click Save to save the file on your computer.
12. Click Run to install the updated BIOS settings on your computer.
    - Follow the instructions on the screen.

Updating BIOS using USB flash drive

If the system cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another system and save it to a bootable USB Flash Drive.

1. Download the BIOS update .EXE file to another system.
2. Copy the file Example: O9010A12.exe onto the bootable USB Flash drive.
3. Insert the USB Flash drive into the system that requires the BIOS update.
4. Restart the system and press F12 when the Dell logo appears to display the boot menu.
5. Using arrow keys, select USB Storage Device and press Return.
6. The system will boot to a Diag C:\> prompt
7. Run the file by typing the full filename Example: O9010A12.exe and hit Return,
8. The BIOS Update Utility will load, follow the instructions on screen.

System and setup password

<table>
<thead>
<tr>
<th>Table 2. System and setup password</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Password type</strong></td>
</tr>
<tr>
<td>System password</td>
</tr>
<tr>
<td>Setup password</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 prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

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 reboots.
**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:

- Supported operating systems
- Processor specifications
- System specifications
- Memory specifications
- Storage specifications
- Video specifications
- Audio specifications
- Battery specifications
- AC adapter specifications
- Docking options
- Port and connector specifications
- Communication specifications
- Camera specifications
- Touchpad specifications
- Display specifications
- Physical specifications
- Environmental specifications

**Supported operating systems**

The topic lists the operating systems supported for Latitude 7480.

<table>
<thead>
<tr>
<th>Supported operating systems</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 10</td>
<td>Microsoft Windows 10 Pro 64-bit</td>
</tr>
<tr>
<td></td>
<td>Microsoft Windows 10 Home 64-bit</td>
</tr>
<tr>
<td>Other</td>
<td>Ubuntu 16.04 LTS SP1 64-bit</td>
</tr>
<tr>
<td></td>
<td>NeoKylin v6.0 64-bit</td>
</tr>
</tbody>
</table>

**Processor specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types</td>
<td>6th generation Intel Core i3, i5 / i7 series</td>
</tr>
</tbody>
</table>
System specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chipset</td>
<td></td>
</tr>
<tr>
<td>DRAM bus width</td>
<td>64-bit</td>
</tr>
<tr>
<td>Flash EPROM</td>
<td>SPI 128 Mbits</td>
</tr>
<tr>
<td>PCIe bus</td>
<td>100 MHz</td>
</tr>
<tr>
<td>External Bus</td>
<td>DMI 3.0—8GT/s</td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
</tr>
</tbody>
</table>

Memory specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory connector</td>
<td>Two SoDIMM slots</td>
</tr>
<tr>
<td>Memory capacity</td>
<td>4 GB, 8 GB, 16 GB, and 32 GB</td>
</tr>
<tr>
<td>Memory type</td>
<td>DDR4 SDRAM—2133MHz</td>
</tr>
<tr>
<td>Minimum memory</td>
<td>4 GB</td>
</tr>
<tr>
<td>Maximum memory</td>
<td>32 GB</td>
</tr>
</tbody>
</table>

Storage specifications

This laptop supports M.2 SATA SSD and M.2 PCIe NVMe SSDs.

The options are:

- M.2 SATA SSD
  - 128 GB
  - 256 GB
  - 512 GB
  - 1 TB
- M.2 PCIe NVMe SSD
  - 128 GB
  - 256 GB
  - 512 GB
  - 1 TB

Video specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Integrated on system board</td>
</tr>
<tr>
<td>UMA controller</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intel Integrated HD Graphics 620</td>
</tr>
<tr>
<td></td>
<td>Intel Integrated HD Graphics 520 (available with Intel 6th Gen Core i only)</td>
</tr>
<tr>
<td></td>
<td>Intel Integrated HD Graphics 640 (available with Intel 7th Gen Core i 7660u only)</td>
</tr>
<tr>
<td>Feature</td>
<td>Specification</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>External display support</strong></td>
<td>• On system – eDP (internal display), HDMI</td>
</tr>
<tr>
<td></td>
<td>• Optional Type-C port – VGA, DisplayPort 1.2, DVI and Thunderbolt</td>
</tr>
<tr>
<td><strong>NOTE:</strong></td>
<td>Supports one VGA, DisplayPort, HDMI through the Docking station.</td>
</tr>
</tbody>
</table>

### Audio specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Types</strong></td>
<td>Four-channel high-definition audio</td>
</tr>
<tr>
<td><strong>Controller</strong></td>
<td>Realtek ALC3246</td>
</tr>
<tr>
<td><strong>Stereo conversion</strong></td>
<td>24-bit—analog-to-digital and digital-to-analog</td>
</tr>
<tr>
<td><strong>Internal interface</strong></td>
<td>High-definition audio</td>
</tr>
<tr>
<td><strong>External interface</strong></td>
<td>Microphone-in, stereo headphones, and headset combo connector</td>
</tr>
<tr>
<td><strong>Speakers</strong></td>
<td>Two</td>
</tr>
<tr>
<td><strong>Internal speaker amplifier</strong></td>
<td>2 W (RMS) per channel</td>
</tr>
<tr>
<td><strong>Volume controls</strong></td>
<td>Hot keys</td>
</tr>
</tbody>
</table>

### Battery specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td>• 3-cell Lithium Prismatic battery with ExpressCharge</td>
</tr>
<tr>
<td></td>
<td>• 4-cell Lithium Prismatic battery with ExpressCharge</td>
</tr>
<tr>
<td>42 WHr (3–cell):</td>
<td></td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td>200.5 mm (7.89 inches)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>95.9 mm (3.78 inches)</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>5.7 mm (0.22 inch)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>185.0 g (0.41 lb)</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>11.4 VDC</td>
</tr>
<tr>
<td>60 WHr (4–cell):</td>
<td></td>
</tr>
<tr>
<td><strong>Length</strong></td>
<td>238 mm (9.37 inches)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>95.9 mm (3.78 inch)</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>5.7 mm (0.22 inch)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>270 g (0.6 lb)</td>
</tr>
<tr>
<td><strong>Voltage</strong></td>
<td>7.6 VDC</td>
</tr>
<tr>
<td><strong>Life span</strong></td>
<td>300 discharge per charge cycles</td>
</tr>
<tr>
<td><strong>Temperature range</strong></td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>Specification</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------------------------------------------</td>
</tr>
<tr>
<td>Operating</td>
<td>• Charge: 0°C to 50°C (32°F to 158°F)</td>
</tr>
<tr>
<td></td>
<td>• Discharge: 0°C to 70°C (32°F to 122°F)</td>
</tr>
<tr>
<td>Non-operating</td>
<td>- 20°C to 65°C (-4°F to 149°F)</td>
</tr>
<tr>
<td>Coin cell battery</td>
<td>3 V CR2032 lithium coin cell</td>
</tr>
</tbody>
</table>

### AC adapter specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>65 W or 90 W</td>
</tr>
<tr>
<td>Input voltage</td>
<td>100 V AC to 240 V AC</td>
</tr>
<tr>
<td>Input current—maximum</td>
<td>1.7 A / A</td>
</tr>
<tr>
<td>Input frequency</td>
<td>50 Hz to 60 Hz</td>
</tr>
<tr>
<td>Output current</td>
<td>3.34 A and 4.62 A</td>
</tr>
<tr>
<td>Rated output voltage</td>
<td>19.5 V DC</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>22 x 66 x 106 mm (65 W) and 22 x 66 x 130 (90 W)</td>
</tr>
<tr>
<td>Temperature range—Operating</td>
<td>0°C to 40°C (32°F to 104°F)</td>
</tr>
<tr>
<td>Temperature range—Non-Operating</td>
<td>−40°C to 70°C (−40°F to 158°F)</td>
</tr>
</tbody>
</table>

### Docking options

**NOTE:** Docking stations are sold separately.

- Dell Dock WD15
- Dell Dock Stand DS1000
- Dell Thunderbolt Dock TB16

### Port and connector specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>HDMI 1.4</td>
</tr>
<tr>
<td>Network adapter</td>
<td>One RJ-45 connector</td>
</tr>
<tr>
<td>USB</td>
<td>• Two USB 3.0</td>
</tr>
</tbody>
</table>
Communication specifications

Features | Specification
---|---
Network adapter | 10/100/1000 Mb/s Ethernet (RJ-45)

Camera specifications

NOTE: Systems with FHD display are also shipped with an optional IR camera that supports Windows hello feature.

Feature | Specification
---|---
Type | HD fixed focus
Sensor type | CMOS sensor technology
Imaging rate | Up to 30 frames per second
Video Resolution | 1280 x 720 pixels (0.92 MP)

Touchpad specifications

Feature | Specification
---|---
Active Area | Sensor-active area
X-axis | 
Y-axis | 
X/Y position resolution | X: 1048cpi; Y:984cpi
Multi-touch | Configurable single finger and multi-finger gestures

Display specifications

Feature | Specification
---|---
Type - 14.0" | Anti Glare HD WLED-Non Touch
Luminance | 200 nits
Height | 205.6 mm (8.09 inches)
<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Width</strong></td>
<td>320.9 mm (12.63 inches)</td>
</tr>
<tr>
<td><strong>Diagonal</strong></td>
<td>355.6 mm (14.0 inches)</td>
</tr>
<tr>
<td><strong>Maximum resolution</strong></td>
<td>1366 x 768</td>
</tr>
<tr>
<td><strong>Megapixels</strong></td>
<td>1.05</td>
</tr>
<tr>
<td><strong>Pixels per inch (PPI)</strong></td>
<td>112</td>
</tr>
<tr>
<td><strong>Contrast ratio (minimum)</strong></td>
<td>300:2</td>
</tr>
<tr>
<td><strong>Refresh rate</strong></td>
<td>60 Hz</td>
</tr>
<tr>
<td><strong>Maximum viewing angles—horizontal</strong></td>
<td>+/-40°</td>
</tr>
<tr>
<td><strong>Maximum viewing angles—vertical</strong></td>
<td>+10/-30°</td>
</tr>
<tr>
<td><strong>Pixel pitch</strong></td>
<td>0.2265 x 0.2265 mm</td>
</tr>
<tr>
<td><strong>Type - 14.0&quot;</strong></td>
<td>Anti Glare FHD - Non Touch</td>
</tr>
<tr>
<td><strong>Luminance</strong></td>
<td>300 nits</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>205.6 mm (8.09 inches)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>302.9 mm (12.63 inches)</td>
</tr>
<tr>
<td><strong>Diagonal</strong></td>
<td>355.6 mm (14.0 inches)</td>
</tr>
<tr>
<td><strong>Maximum resolution</strong></td>
<td>1920 x 1080</td>
</tr>
<tr>
<td><strong>Megapixels</strong></td>
<td>2.07</td>
</tr>
<tr>
<td><strong>Pixels per inch (PPI)</strong></td>
<td>157</td>
</tr>
<tr>
<td><strong>Contrast ratio (minimum)</strong></td>
<td>600:1</td>
</tr>
<tr>
<td><strong>Refresh rate</strong></td>
<td>60 Hz</td>
</tr>
<tr>
<td><strong>Maximum viewing angles—horizontal</strong></td>
<td>+/-80°</td>
</tr>
<tr>
<td><strong>Maximum viewing angles—vertical</strong></td>
<td>+/-80°</td>
</tr>
<tr>
<td><strong>Pixel pitch</strong></td>
<td>0.161 x 0.161 mm</td>
</tr>
<tr>
<td><strong>Feature</strong></td>
<td><strong>Specification</strong></td>
</tr>
<tr>
<td><strong>Type - 14.0&quot;</strong></td>
<td>FHD Anti Glare IPDS - Touch</td>
</tr>
<tr>
<td><strong>Luminance</strong></td>
<td>270 nits</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>205.05 mm (8.07 inches)</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td>327.8 mm (12.90 inches)</td>
</tr>
<tr>
<td><strong>Diagonal</strong></td>
<td>355.6 mm (14.0 inches)</td>
</tr>
<tr>
<td><strong>Maximum resolution</strong></td>
<td>1920 x 1080</td>
</tr>
<tr>
<td><strong>Megapixels</strong></td>
<td>2.07</td>
</tr>
<tr>
<td>Feature</td>
<td>Specification</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Pixels per inch (PPI)</td>
<td>157</td>
</tr>
<tr>
<td>Contrast ratio (minimum)</td>
<td>600:1</td>
</tr>
<tr>
<td>Refresh rate</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Maximum viewing angles—horizontal</td>
<td>+/-80°</td>
</tr>
<tr>
<td>Maximum viewing angles—vertical</td>
<td>+/-80°</td>
</tr>
<tr>
<td>Pixel pitch</td>
<td>0.161 x 0.161 mm</td>
</tr>
<tr>
<td><strong>Type - 14.0</strong>:</td>
<td>QHD Anti Glare - Touch</td>
</tr>
<tr>
<td>Luminance</td>
<td>270</td>
</tr>
<tr>
<td>Height</td>
<td>206.6 mm (8.13 inches)</td>
</tr>
<tr>
<td>Width</td>
<td>327.8 mm (12.90 inches)</td>
</tr>
<tr>
<td>Diagonal</td>
<td>355.6 mm - 14.0 inch</td>
</tr>
<tr>
<td>Maximum resolution</td>
<td>2560 x 1440</td>
</tr>
<tr>
<td>Megapixels</td>
<td>3.68</td>
</tr>
<tr>
<td>Pixels per inch (PPI)</td>
<td>210</td>
</tr>
<tr>
<td>Contrast ratio (minimum)</td>
<td>600:1</td>
</tr>
<tr>
<td>Refresh rate</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Maximum viewing angles—horizontal</td>
<td>+/-80°</td>
</tr>
<tr>
<td>Maximum viewing angles—vertical</td>
<td>+/-80°</td>
</tr>
<tr>
<td>Pixel pitch</td>
<td>0.1209 x 0.1209 mm</td>
</tr>
</tbody>
</table>

**Physical specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front height—non-touch</td>
<td>11.58 mm (0.45 inch)</td>
</tr>
<tr>
<td>Back height—non-touch</td>
<td>18.41 mm (0.72 inch)</td>
</tr>
<tr>
<td>Back height—touch</td>
<td>18.41 mm (0.72 inch)</td>
</tr>
<tr>
<td>Width</td>
<td>331.0 mm (13.03 inches)</td>
</tr>
<tr>
<td>Depth</td>
<td>220.9 mm (8.69 inches)</td>
</tr>
<tr>
<td>Weight—non-touch with 3-cell battery</td>
<td>1.36 kg (3.01 lbs)</td>
</tr>
</tbody>
</table>

66  System specifications
# Environmental specifications

<table>
<thead>
<tr>
<th></th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong></td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>0°C to 60°C (32°F to 140°F)</td>
</tr>
<tr>
<td>Storage</td>
<td>−51°C to 71°C (−59°F to 159°F)</td>
</tr>
<tr>
<td><strong>Relative humidity</strong></td>
<td></td>
</tr>
<tr>
<td>— maximum</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>10% to 90% (non-condensing)</td>
</tr>
<tr>
<td>Storage</td>
<td>5% to 95% (non-condensing)</td>
</tr>
<tr>
<td><strong>Altitude</strong></td>
<td></td>
</tr>
<tr>
<td>— maximum</td>
<td></td>
</tr>
<tr>
<td>Operating</td>
<td>−15.2 m to 3048 m (−50 to 10,000 ft)</td>
</tr>
<tr>
<td>Storage</td>
<td>5% to 95% (non-condensing)</td>
</tr>
<tr>
<td></td>
<td>0°C to 35°C</td>
</tr>
<tr>
<td>Non-operating</td>
<td>−15.24 m to 10,668 m (−50 ft to 35,000 ft)</td>
</tr>
<tr>
<td>Airborne contaminant level</td>
<td>G2 or lower as defined by ISA S71.04–1985</td>
</tr>
</tbody>
</table>
Topics:
• Boot Sequence
• Navigation keys
• System setup options
• General screen options
• System Configuration screen options
• Video screen options
• Security screen options
• Secure Boot screen options
• Intel software guard extensions screen options
• Performance screen options
• Power management screen options
• POST behavior screen options
• Manageability
• Virtualization support screen options
• Wireless screen options
• Maintenance screen options
• System logs screen options
• Updating the BIOS in Windows
• System and setup password

Boot Sequence

Boot Sequence allows you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

• Access System Setup by pressing F2 key
• Bring up the one-time boot menu by pressing F12 key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

• Removable Drive (if available)
• STXXXX Drive

⚠️ | NOTE: XXX denotes the SATA drive number.

• Optical Drive (if available)
• SATA Hard Drive (if available)
• Diagnostics

⚠️ | NOTE: Choosing Diagnostics, will display the ePSA diagnostics screen.

The boot sequence screen also displays the option to access the System Setup screen.
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>
<tr>
<td>Tab</td>
<td>Moves to the next focus area.</td>
</tr>
</tbody>
</table>

**NOTE:** For the standard graphics browser only.

<table>
<thead>
<tr>
<th>Keys</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esc</td>
<td>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.</td>
</tr>
</tbody>
</table>

System setup options

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

General screen options

This section lists the primary hardware features of your computer.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Information</td>
<td>This section lists the primary hardware features of your computer.</td>
</tr>
<tr>
<td>System Information:</td>
<td>Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date,</td>
</tr>
<tr>
<td>Memory Information:</td>
<td>Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode,</td>
</tr>
<tr>
<td>Processor Information:</td>
<td>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>Device Information:</td>
<td>Displays M.2 SATA, M.2 PCIe SSD-0, LOM MAC Address, Passthrough MAC address,</td>
</tr>
</tbody>
</table>

Battery Information Displays the battery status health and whether the AC adapter is installed.

Boot Sequence Allows you to change the order in which the computer attempts to find an operating system.

- Diskette Drive
- Internal HDD
- USB Storage Device
- CD/DVD/CD-RW Drive
- Onboard NIC

Boot sequence options

- Windows boot manager
- WindowsIns
## System Configuration screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integrated NIC</strong></td>
<td>Allows you to configure the integrated network controller. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td></td>
<td>• Enable UEFI network stack: This option is enabled by default.</td>
</tr>
<tr>
<td></td>
<td>• Enabled w/PXE</td>
</tr>
<tr>
<td><strong>Parallel Port</strong></td>
<td>Allows you to configure the parallel port on the docking station. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• AT: This option is enabled by default.</td>
</tr>
<tr>
<td></td>
<td>• PS2</td>
</tr>
<tr>
<td></td>
<td>• ECP</td>
</tr>
<tr>
<td><strong>Serial Port</strong></td>
<td>Allows you to configure the integrated serial port. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• COM1: This option is enabled by default.</td>
</tr>
<tr>
<td></td>
<td>• COM2</td>
</tr>
<tr>
<td></td>
<td>• COM3</td>
</tr>
<tr>
<td></td>
<td>• COM4</td>
</tr>
<tr>
<td><strong>SATA Operation</strong></td>
<td>Allows you to configure the internal SATA hard-drive controller. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• AHCI</td>
</tr>
<tr>
<td></td>
<td>• RAID On: This option is enabled by default.</td>
</tr>
<tr>
<td><strong>Drives</strong></td>
<td>Allows you to configure the SATA drives on board. All drives are enabled by default. The options are:</td>
</tr>
<tr>
<td></td>
<td>• SATA-0</td>
</tr>
<tr>
<td></td>
<td>• M.2 PCI-e SSD-0</td>
</tr>
<tr>
<td></td>
<td>• SATA-2</td>
</tr>
</tbody>
</table>
### Option Description

#### SMART Reporting
This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self-Monitoring Analysis and Reporting Technology) specification. This option is disabled by default.

- Enable SMART Reporting

#### USB Configuration
This is an optional feature.

This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices—HDD, memory key, floppy.

If USB port is enabled, device attached to this port is enabled and available for OS.

If USB port is disabled, the OS cannot see any device attached to this port.

The options are:

- Enable USB Boot Support—enabled by default
- Enable the Thunderbolt ports—enabled by default
- Always Allow dell docks—enabled by default
- Enable External USB Port—enabled by default
- Enable Thunderbolt Boot Support
- Enable Thunderbolt (and PCIE behind TBT) Preboot
- Security level-no security
- Security level-user configuration—enabled by default
- Security level-secure connect
- Security level- Display port only

**NOTE:** USB keyboard and mouse always work in the BIOS setup irrespective of these settings.

#### USB PowerShare
This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port. This option is disabled by default.

#### Audio
This field enables or disables the integrated audio controller. By default, the **Enable Audio** option is selected. The options are:

- Enable Microphone—by default enable
- Enable Internal Speaker—by default enable

#### Keyboard Illumination
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:

- Disabled—enabled by default
- Dim (50%)  
- Bright

#### Keyboard Backlight with AC
The Keyboard Backlight with AC option does not affect the main keyboard illumination feature. Keyboard illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. This option is enabled by default.

#### 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
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 sec—enabled by default</td>
<td></td>
</tr>
<tr>
<td>15 sec</td>
<td></td>
</tr>
<tr>
<td>30 sec</td>
<td></td>
</tr>
<tr>
<td>1 min</td>
<td></td>
</tr>
<tr>
<td>5 min</td>
<td></td>
</tr>
<tr>
<td>15 min</td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td></td>
</tr>
</tbody>
</table>

**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.

**Unobtrusive Mode**
This option, when enabled, pressing Fn+F7 turns off all light and sound emissions in the system. To resume normal operation, press Fn+F7 again. This option is disabled by default.

**Miscellaneous Devices**
Allows you to enable or disable the following devices:

- Enable Camera—enabled by default
- Secure Digital (SD) card—enabled by default
- Secure Digital (SD) card boot
- Secure Digital (SD) card read-only-mode

---

### Video screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD Brightness</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 screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin Password</td>
<td>Allows you to set, change, or delete the administrator (admin) password.</td>
</tr>
</tbody>
</table>

**NOTE:** You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password.

**NOTE:** Successful password changes take effect immediately.
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Password</strong></td>
<td>Allows you to set, change, or delete the system password.</td>
</tr>
<tr>
<td><strong>Internal HDD-2 Password</strong></td>
<td>Allows you to set, change, or delete the administrator password.</td>
</tr>
<tr>
<td><strong>Strong Password</strong></td>
<td>Allows you to enforce the option to always set strong passwords.</td>
</tr>
<tr>
<td><strong>Password Configuration</strong></td>
<td>Allows you to specify the minimum and max password lengths of the Administrator and System passwords.</td>
</tr>
<tr>
<td><strong>Password Bypass</strong></td>
<td>Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are:</td>
</tr>
<tr>
<td><strong>Password Change</strong></td>
<td>Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.</td>
</tr>
<tr>
<td><strong>Non-Admin Setup Changes</strong></td>
<td>Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password. Option &quot;allow wireless switch changes&quot; is not selected by default.</td>
</tr>
<tr>
<td><strong>TPM 2.0 Security</strong></td>
<td>Allows you to enable the Trusted Platform Module (TPM) during POST. The options are:</td>
</tr>
</tbody>
</table>

**NOTE:** Successful password changes take effect immediately.

Default setting: Not set

**NOTE:** If Strong Password is enabled, the Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.

- min-4—you can increase the number
- max-32—you can decrease the number

Default setting: Disabled

Default setting: Allow Non-Admin Password Changes is selected.

- Disabled
- Reboot bypass
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NOTE:</strong> To upgrade or downgrade TPM 2.0, download the TPM wrapper tool—software.</td>
<td></td>
</tr>
<tr>
<td><strong>Option</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Computrace</td>
<td>Allows you to activate or disable the optional Computrace software. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Deactivate</td>
</tr>
<tr>
<td></td>
<td>• Disable</td>
</tr>
<tr>
<td></td>
<td>• Activate—enabled by default</td>
</tr>
<tr>
<td><strong>NOTE:</strong> The Activate and Disable options will permanently activate or disable the feature and no further changes are allowed.</td>
<td></td>
</tr>
<tr>
<td>CPU XD Support</td>
<td>Allows you to enable the Execute Disable mode of the processor.</td>
</tr>
<tr>
<td></td>
<td>Enable CPU XD Support—enabled by default</td>
</tr>
<tr>
<td>OROMKeyboard Access</td>
<td>Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are:</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td></td>
<td>• One Time Enable</td>
</tr>
<tr>
<td></td>
<td>• Disable</td>
</tr>
<tr>
<td>Default setting: Enable</td>
<td></td>
</tr>
<tr>
<td>Admin Setup Lockout</td>
<td>Allows you to prevent users from entering Setup when an Administrator password is set.</td>
</tr>
<tr>
<td></td>
<td>Default Setting: This option is enabled</td>
</tr>
<tr>
<td>Master password lockout</td>
<td>This option is not enabled by default</td>
</tr>
</tbody>
</table>

### Secure Boot screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Secure Boot Enable</strong></td>
<td>This option enables or disables the Secure Boot feature.</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td>Default setting: Enabled</td>
<td></td>
</tr>
<tr>
<td><strong>Expert Key Management</strong></td>
<td>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:</td>
</tr>
<tr>
<td></td>
<td>• PK—enabled by default</td>
</tr>
<tr>
<td></td>
<td>• KEK</td>
</tr>
<tr>
<td></td>
<td>• db</td>
</tr>
<tr>
<td></td>
<td>• dbx</td>
</tr>
<tr>
<td>If you enable the <strong>Custom Mode</strong>, the relevant options for PK, KEK, db, and dbx appear. The options are:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Save to File—Saves the key to a user-selected file</td>
</tr>
<tr>
<td></td>
<td>• Replace from File—Replaces the current key with a key from a user-selected file</td>
</tr>
<tr>
<td></td>
<td>• Append from File—Adds a key to the current database from a user-selected file</td>
</tr>
</tbody>
</table>
Option Description
• **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 are erased and the keys restore to default settings.

---

**Intel software guard extensions screen options**

Option Description
**Intel SGX Enable**
This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS. The options are:

• Disabled
• Enabled

Default setting: Enabled

**Enclave Memory Size**
This option sets **SGX Enclave Reserve Memory Size**. The options are:

• 32 MB
• 64 MB
• 128 MB—enabled by default

---

**Performance screen options**

Option Description
**Multi-Core Support**
This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor. The installed processor supports two cores. If you enable Multi-Core Support, two cores are enabled. If you disable Multi-Core Support, one core is enabled.

• Enable Multi-Core Support

Default setting: The option is enabled.

**Intel SpeedStep**
Allows you to enable or disable the Intel SpeedStep feature.

• Enable Intel SpeedStep

Default setting: The option is enabled.

**C-States Control**
Allows you to enable or disable the additional processor sleep states.

• C states

Default setting: The option is enabled.

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

• Enable Intel TurboBoost
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default setting: The option is enabled.</td>
<td></td>
</tr>
<tr>
<td>HyperThread Control</td>
<td>Allows you to enable or disable the Hyper-Threading in the processor.</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td>Default setting: Enabled is selected.</td>
<td></td>
</tr>
</tbody>
</table>

### Power management screen options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC Behavior</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>Auto On Time</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>Default setting: Disabled</td>
<td></td>
</tr>
<tr>
<td>USB Wake Support</td>
<td>Allows you to enable USB devices to wake the system from Standby.</td>
</tr>
<tr>
<td></td>
<td><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</td>
</tr>
<tr>
<td>Default setting: The option is disabled.</td>
<td></td>
</tr>
<tr>
<td>Wake on WLAN</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. Default setting: Disabled</td>
</tr>
<tr>
<td>Block Sleep</td>
<td>This option lets you block entering to sleep (S3 state) in operating system environment. Block Sleep (S3 state) Default setting: This option is disabled</td>
</tr>
<tr>
<td>Peak Shift</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>Advanced Battery Charge</td>
<td>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 nonwork hours to improve the battery health.</td>
</tr>
<tr>
<td>Configuration</td>
<td>Disabled</td>
</tr>
<tr>
<td>Option</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| **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. This option is enabled by default.  
  - 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.  

| Sleep mode | OS Automatic selection—enabled by default  
  
  Force S3  

| Type-C connector power | 7.5 Watts  
  
  15 Watts—enabled by default  

---

**POST behavior screen options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Adapter Warnings** | Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default setting: Enable Adapter Warnings  

| Keypad (Embedded) | Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard.  
  
  - Fn Key Only—default.  
  - By Numlock  

  **NOTE:** When setup is running, this option has no effect. Setup works in Fn Key Only mode.  

| Mouse/Touchpad | Allows you to define how the system handles mouse and touch pad input. The options are:  
  
  - Serial Mouse  
  - PS2 Mouse  
  - Touchpad/PS-2 Mouse: This option is enabled by default.  

| Numlock Enable | Allows you to enable the Numlock option when the computer boots. Enable Network. This option is enabled by default.  

<p>| Fn Key Emulation | Allows you to set the option where the Scroll Lock key is used to simulate the Fn key feature. Enable Fn Key Emulation (default) |</p>
<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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>Extended BIOS</td>
<td>Allows you to create an extra preboot delay. The options are:</td>
</tr>
<tr>
<td>POST Time</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>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>USB provision</td>
<td>Enable USB provision is not selected by default</td>
</tr>
<tr>
<td>MEBX Hotkey — enabled by default</td>
<td>Allows you to specify whether the MEBx Hotkey function should enable, during the system boot.</td>
</tr>
<tr>
<td></td>
<td>• Disabled</td>
</tr>
<tr>
<td></td>
<td>• Enabled</td>
</tr>
<tr>
<td></td>
<td>Default setting: Disabled</td>
</tr>
</tbody>
</table>

**Virtualization support screen options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<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 screen options**

<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>
</tbody>
</table>
Option | Description
---|---
• WWAN
• GPS (on WWAN Module)
• WLAN/WiGig
• Bluetooth

All the options are enabled by default.

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

**Wireless Device Enable**

Allows you to enable or disable the internal wireless devices.

• WWAN/GPS
• WLAN/WiGig
• Bluetooth

All the options are enabled by default.

**NOTE:** IMEI number for WWAN can be found on the outer box or the WWAN card.

**Maintenance screen options**

Option | Description
---|---
**Service Tag** | Displays the Service Tag of your computer.
**Asset Tag** | Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
**BIOS Downgrade** | This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default.
**Data Wipe** | 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:
• Internal SATA HDD/SSD
• Internal M.2 SATA SDD
• Internal M.2 PCIe SSD
• Internal eMMC
**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 screen options**

Option | Description
---|---
**BIOS Events** | Allows you to view and clear the System Setup (BIOS) POST events.
**Thermal Events** | Allows you to view and clear the System Setup (Thermal) events.
**Power Events** | Allows you to view and clear the System Setup (Power) events.
Updating the BIOS in Windows

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power outlet.

1. **NOTE:** If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re-enabled after the BIOS update is completed.

1. Restart the computer.
2. Go to [Dell.com/support](http://Dell.com/support).
   - Enter the Service Tag or Express Service Code and click **Submit**.
   - Click **Detect Product** and follow the instructions on screen.
3. If you are unable to detect or find the Service Tag, click **Choose from all products**.
4. Choose the **Products** category from the list.
   
   **NOTE:** Choose the appropriate category to reach the product page
5. Select your computer model and the **Product Support** page of your computer appears.
6. Click **Get drivers** and click **Drivers and Downloads**.
The Drivers and Downloads section opens.
7. Click **Find it myself**.
8. Click **BIOS** to view the BIOS versions.
9. Identify the latest BIOS file and click **Download**.
10. Select your preferred download method in the **Please select your download method below** window, click **Download File**.
The **File Download** window appears.
11. Click **Save** to save the file on your computer.
12. Click **Run** to install the updated BIOS settings on your computer.

   Follow the instructions on the screen.

### 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 prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

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 reboots.
Enhanced Pre-Boot System Assessment — ePSA diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

⚠️ **CAUTION:** Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.

⚠️ **NOTE:** Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

Running the ePSA Diagnostics

Invoke diagnostics boot by either of the methods that are suggested below:

1. Power on the computer.
2. As the computer boots, press the F12 key when the Dell logo is displayed.
3. In the boot menu screen, use Up/Down arrow key to select the **Diagnostics** option and then press **Enter**.

⚠️ **NOTE:** The Enhanced Pre-boot System Assessment window displays, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.

4. Press the arrow in the lower-right corner to go to the page listing. The detected items are listed and tested.
5. To run a diagnostic test on a specific device, press Esc and click **Yes** to stop the diagnostic test.
6. Select the device from the left pane and click **Run Tests**.
7. If there are any issues, error codes are displayed. Note the error code and contact Dell.
   or
8. Shut down the computer.
9. Press and hold the Fn key, while pressing the power button, and then release both.
10. Repeat steps 3–7 above.
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.